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THE

FLORICULTURAL CABINET,

AND

Florists' Magazine.

JANUARY TO DECEMBER, 1857.

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PREFACE.

AT the conclusion of our editorial labours of another year, it becomes our duty, and is indeed a pleasure, to return our unfeigned thanks to our subscribers for their noble support of the FLORICULTURAL CABINET. Established originally twenty-five years ago (in 1833), and the first periodical devoted to Floriculture, it is, consequently, the parent of all similar publications that have since appeared; it is therefore most gratifying and indeed highly flattering to us that we still maintain our position at the head of the poll. In stating this much we do not take praise to ourselves, but are glad to perceive that our efforts, aided by numerous able contributors, in the cause of Floriculture have met with an ample reward; and here we take the opportunity to inform the supporters of this work that we do not publish the CABINET as a monetary speculation, being quite content to give our services to the cause of Floriculture.

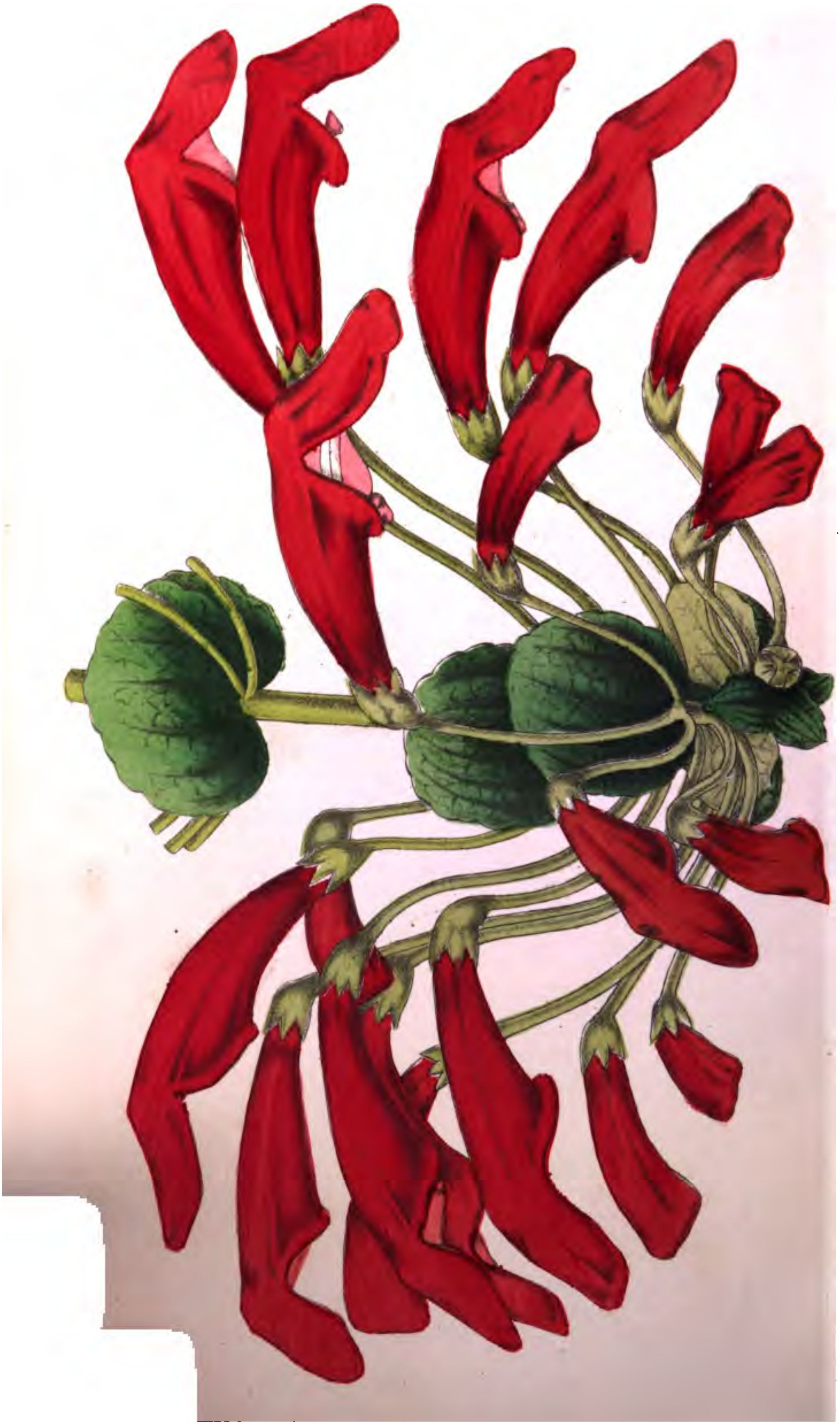
It is, as heretofore it has been, our desire to render this magazine a cheap and popular vehicle for the diffusion of a knowledge and promotion of the love of gardening, in this, its most delightful department—the culture of flowers. With this desire the work was commenced, and the public were pleased to give it a noble support, such indeed as few periodicals could ever lay claim to, having disposed of as many as twelve thousand impressions monthly. On the establishment of the garden newspapers the sale of the work in some degree fell off, as might have been expected, but we have since been gratified to find its sale again rise, and that it appears likely to increase.

Our desire is to make the FLORICULTURAL CABINET a *useful* *work*, and in doing this our subscribers can help us materially--such as approve of it can help us with their recommendation—they can help us also, by their communications and advice, for we are always most ready to respond to wholesome advice, and have effected certain improvements through the suggestions of some of our correspondents, while we have others in contemplation. So long as we meet with public support and appreciation of our labours, so long shall we continue to carry on the CABINET, and in proportion as we have that support increased, we shall continue to improve the work. We wish to give the best matter and the best illustrations that we can for the money.

On this occasion we must not omit to return our cordial thanks to many old and valued correspondents as well as to old subscribers, some of whom are of twenty-five years standing—death, alas! has removed a few, whose place can be occupied only by new ones, of these we have however not a few, and we trust the number is increasing. One valued contributor, in a letter recently received, and from which, with permission, we lay an extract before our readers, says—"I am truly glad the *Cabinet* is so well supported. Since its commencement, when I was a young and enthusiastic florist, many periodicals of a similar nature have appeared, but only to disappear. One sound work that has an established hold on the friends of Floriculture is, however, more deserving of support than all the ephemeral publications of the day. Nevertheless, the attempts so frequently made to establish new publications, is an evidence of the spread of a love of our favourite art amongst all classes of the community."

Again thanking our subscribers for their past support, and trusting the enlistment of it in future, as well as for their recommendation of the work to their friends and neighbours, we take our annual farewell, with grateful acknowledgments, and hearty wishes for a *happy new year*.

LONDON, *December*, 1857.



DIRCÆA BLASSII.

The Floricultural Cabinet.

JANUARY, 1857.

ILLUSTRATION.

DIRCÆA BLASSII.

JUSTLY has the old genus Gesneria been subdivided by the continental botanists; such members of it as are distinguished by a remarkable elongation of the upper lip of the corolla, and possess large tuberous rhizomes, with other minor peculiarities, now form the sub-genus Dircæa. Almost all of them are of erect upright habit; but to this rule the species now figured is an exception, being prostrate, and its branches dependent. *Dircæa Blassii* is by far the most magnificent of the tribe, and for its introduction we appear to be indebted to M. Kraemp, an enthusiastic and very successful cultivator at Holbocken, near Antwerp, at whose sale the stock was purchased by M. Van Houtte, in whose establishment at Ghent it has bloomed, and where, says that gentleman, "a specimen plant of extraordinary size has excited the admiration of all who have beheld it. This plant at the present moment bears fifteen pendent stems, each *more than seven feet in length*, carrying *upwards of one hundred and fifty flowering branches*, which bear altogether *from fifteen hundred to two thousand lovely blossoms!*" The colour of the latter is a clear, velvety, orange-red, the throat being paler, and the foliage a rich green. We regret that the size of our plate does not admit of our doing justice to the splendour of the plant, which bears cluster upon cluster of flowers, ranged one above another, all down the stems. The culture of Dircæas resembles that of others of the *Gesneriaceæ*, *D. Blassii* having flowered profusely, with M. Van Houtte, in a temperate house. We are compelled to add our tribute of admiration to this extraordinary plant, which we rank as one of the most promising additions of late introduced to European gardens, and deserving a place wherever the necessary accommodation for its growth can be afforded. Its native country is not clearly known, although there can be but little doubt of its having been received from some province of Brazil. The specific name is in honour of M. Blass, of Elberfeld.

ON LESCHENAULTIAS.

BY MR. JAMES AYRES.

THERE are few plants more beautiful than good specimens, well bloomed, of Leschenaultias, both of the red and the blue varieties. The former, *Leschenaultia formosa*, produces its pretty flowers at various seasons of the year, and its habit is very compact; the blue, *L. biloba*, blossoms in early summer, but its habit is somewhat more straggling, and unless "stopped-in" while young, it is not easy to obtain compact and bushy plants. To have neat-looking well-formed specimens, it is desirable, in the first instance, to select young plants proper for the purpose, which should be stiff and bushy, with good roots. Having such plants to work with, an active healthy growth must be induced as early in spring as possible. Commencing in March, place them near the glass, in a position which allows a free admission of air at all favourable times; a temperature of about fifty degrees at night, allowing it to rise ten degrees higher during the daytime. When the state of the roots indicates that a shift into a larger size is desirable, give them more space, and attend to watering, as well as to maintaining a pretty moist atmosphere, until they have made new roots. At all times, when freely progressing, let them have a liberal supply of water at the root, and sprinkle the floor of the house, as well as the plants, over-head, with the syringe. Care is necessary to preserve these plants from cold dry winds or currents, of which the Leschenaultia is very impatient. If placed in a cold pit during the summer months, and protected by a thin shade from noonday sun, they will make a robust and active growth. Keep the pit close during the evening, and regularly water the ashes on which the pots should be set, as well as continue to sprinkle them over-head with a fine syringe, but raise the lights a little for the night-time. By the beginning of July it is probable some of the plants may again require shifting, in which case avoid large shifts. At the close of August they will have made their full growth for that season, and require to be hardened off by a full exposure to the air and sun, ready for the winter, reducing the waterings; at this time and when winter arrives, it requires some care to preserve the plants from the evil effects of moisture, as they are apt to suffer from damp. When water is given, the best time is early in the day, and the foliage should be kept dry, especially in dull or damp weather. If the specimens have attained the desired size, they may be preserved in a greenhouse temperature during spring; but if not sufficiently large for flowering, adopt the same treatment this season as last. It is often necessary that *L. biloba* should be cut back, in order to make it bushy; and *L. formosa* should have the blooms picked off as they show. After flowering, to secure compact growth, they may be shifted, and cut in; under proper treatment, the specimens will last some years, yet it is an advantage to retain a stock of healthy young plants. The display of the blue variety is considerably prolonged by shading it during bright weather. The compost which I find of the greatest advantage in the successful cultivation of Leschenaultias is made by mixing fibrous peat, broken up into small lumps, a small quantity of mellow loam, and plenty of silver sand; the pots cannot be too well drained. To propagate, select cuttings from firm pieces of the young wood, early in spring, prick them in sandy peat, and cover with a bell-glass; in a bottom heat of seventy degrees they will root in a short time, when they should be potted off in small pots, and replunged till they have become established.

ON THE CULTURE OF BEGONIAS.

BY THE FOREMAN OF A LONDON NURSERY.

BEGONIAS are becoming universal favourites, and where floral beauty and handsome growth are required, I believe there are few genera which are more desirable than the subject of these remarks. Within the past ten years the Begonia has risen greatly in the estimation of cultivators, which is probably due to the fact of the progressive improvement which has taken place in their method of culture, and to the introduction of many handsome species; besides which, the genus is remarkable for the abundance and long continuance of its blossom, so that there is scarcely one month in the twelve wherein some one or other of the species may not be seen flowering in perfection.

Many persons have been deterred from the cultivation of this interesting tribe because stove treatment has been by some considered indispensable to their proper growth. All are, it is true, benefited by a considerable amount of heat in the early stage of their progress, but a stove temperature is not an indispensable requisite in the culture of a number of species; and all who can command a hotbed, or an ordinary brick pit heated by hot water or by dung, may manage them in perfection, as the plants require a gentle bottom heat for the roots, and an atmosphere uniformly moist. As they advance in growth, the degree of warmth should be suffered to decline gradually until the bloom shows, when, in summer at least, it may be withdrawn altogether. This conduces greatly to the health of the plants, which are thereby more robust, and the bloom lasts much longer, as well as assumes a finer tint. In their native localities Begonias are mostly found in shady sheltered places, growing in a humid soil, and following nature, we find it beneficial to shelter them during growth from mid-day sun, and to administer water with liberality; but here it must be noted that free drainage is essential, and if water passes off quickly from the pots, so as to leave the soil just moist, and not stagnate, no evil result will follow the most copious application. When the plants are at rest however, and before they recommence growth, this element should be sparingly afforded. Those kinds which have slender stems and small leaves, as *Begonia Martiana*, require even less water than the more vigorous ones. Liquid manure, especially a very dilute solution of guano, is of great benefit, though this must never be given until the plants have begun to make some progress in their growth. Various soils and composts have been recommended by cultivators, some preferring peat, some loam, and others light sandy earth; I am assured, however, that although these may suit some species, they cannot be of so great advantage as a rich soil, made of rotten turf from a pasture, decayed leaves, and fibrous peat, in about equal proportions; observing to use more of the latter in making a compost for the delicate kinds, and more leaf-manure for the stronger and more vigorous species.

Pot-room is of great advantage to this tribe, and the plants will progress rapidly where the roots are not confined, and the soil is good; the abundance of their bloom depends greatly on this. I must remark, however, that a plant should not be shifted late in its growing season to a pot of much larger size, for large shifts are only proper where plants are commencing growth. There are several species which I find do well in a greenhouse border; the most effective plan of carrying this out is to appropriate a border, or a portion of one, exclusively to their growth. They soon exhaust the soil however, which will require renewing every other year, and those of the caulescent kind should have their old shoots cut away annually, to encourage strong stems pushing from the roots; the tuberous species require taking up and replanting yearly. Attention to pruning and cutting in makes fine specimens, and no wood should be allowed of more than two years' growth; for it is always found that old wood yields fewer and smaller flowers than the young and succulent shoots of new growth, which at all times form the handsomest specimens, and although this occasions rather more trouble, yet a few well-grown and well-bloomed specimens are far more pleasing, and reflect much greater credit on the grower, than a number of tall, lanky, ill-formed plants, almost destitute of flowers and foliage.

The following are among the best varieties now in cultivation, and may serve as a guide to such as are about to form a small collection. *Albo coccinea*, dwarf, red and white; *Argyrostigma*, foliage handsome, spotted with white dots; *Coccinea*, scarlet, flowers in winter: *Fuchsioides*, scarlet flowers, borne in graceful drooping panicles; *Manicata*, pink, very large panicles, foliage ornamental; *Martiana*, bright rose, very ornamental, tuberous-rooted; *Nitida*, white, with yellow centre, flowers in splendid large panicles, very showy; *Opuliflora*, pure white, flowers in compact round heads, resembling the Guelder Rose;

Parviflora, white, blooms a very long time, very neat and pretty; ***Prestoniensis***, large, bright orange-scarlet; ***Sanguinea***, foliage very red; ***Saundersiana***, dwarf, bright rosy red, free blooming; ***Verschaffeldtii***, dwarf, pink, foliage large and fine; ***Thwaitesii***, blush, white and yellow, very dwarf and neat, strikingly handsome foliage, requires to be grown under a bell-glass; ***Xanthina***, yellow, dwarf habit, large foliage; ***Xanthina marmorea***, foliage blotched with white; ***Zebrina***, very ornamentally marked foliage; ***Zeylanioa***, foliage beautifully frosted, dwarf and compact habit,

EPIPHYLLUMS.

BY F. E., COUNTY DURHAM.

HAVING cultivated these plants with great success, and finding them so valuable at this time of year, I am induced to send the result of my experience to the *Floricultural Cabinet*, hoping to recommend a gem to those who know it not, and perhaps (in their grafted form) a variety and novelty to others. I became possessed accidentally of a grafted plant of *Epiphyllum violaceum*, which grew and flourished remarkably well; but was long in ascertaining the name of the stock it was grafted on, and which I find is the old *Pereskia aculeata*, or American Gooseberry; which, though a slender plant, has the power of supporting much larger and stronger ones of its own tribe. The stem is nineteen inches from the pot to the graft, and not thicker than a common-sized lead pencil. The head without any training is a complete circle, as large as a parasol; it produces more than a hundred flowers at one time, and always blossoms twice between November and June; last year, however, it flowered three times, equally well, and with no diminution in the size or colour of the blossoms, nor any signs of exhaustion in the foliage. It has now (November the 30th) been in bloom a month. Its singularly pretty flowers have been compared to insects alighted on the green branches, their position being so buoyant and aerial; their form is curious, the colours are exquisite, while the stamens and pistils are of such brightness and fineness that they may be compared to spun glass.

E. truncatum, is coarser, and of a dull red in comparison; but it is valuable in itself, and particularly for its flowering (though somewhat later than *violaceum*) at a time when there is so little variety of other blossoms. The method of grafting them on *Pereskia aculeata* is this: cut the head of the stock off from six inches to two feet, as preferred for the height, and with a sharp knife make a slit in the middle, from the top, about half an inch long, then insert the graft like a wedge, press it firmly into the stock, and pass a spine of any other strong-growing sort through the graft and stock, to prevent the former slipping out of its place; bind a little soft moss round the part operated on, and in a week or ten days it will have rooted, and will soon form a fine head. The treatment of the Epiphyllums is the same as the Cactus tribe in general, but they require a stove to bring them to perfection; they should be dried off when done blooming, and have but little water at all times. The Pereskia strikes readily from cuttings, and will grow in almost any soil; but the Epiphyllums on their own roots require a strong loam, leaf-mould, and cow-dung; they also strike easily, and flower the second year.

Grafted plants are decidedly more abundant bloomers, both as to the number of flowers and continuance; indeed, the repetition is wonderful, and at some stages appears exhaustless.

THE APHELEXIS, ITS PROPAGATION AND MANAGEMENT.

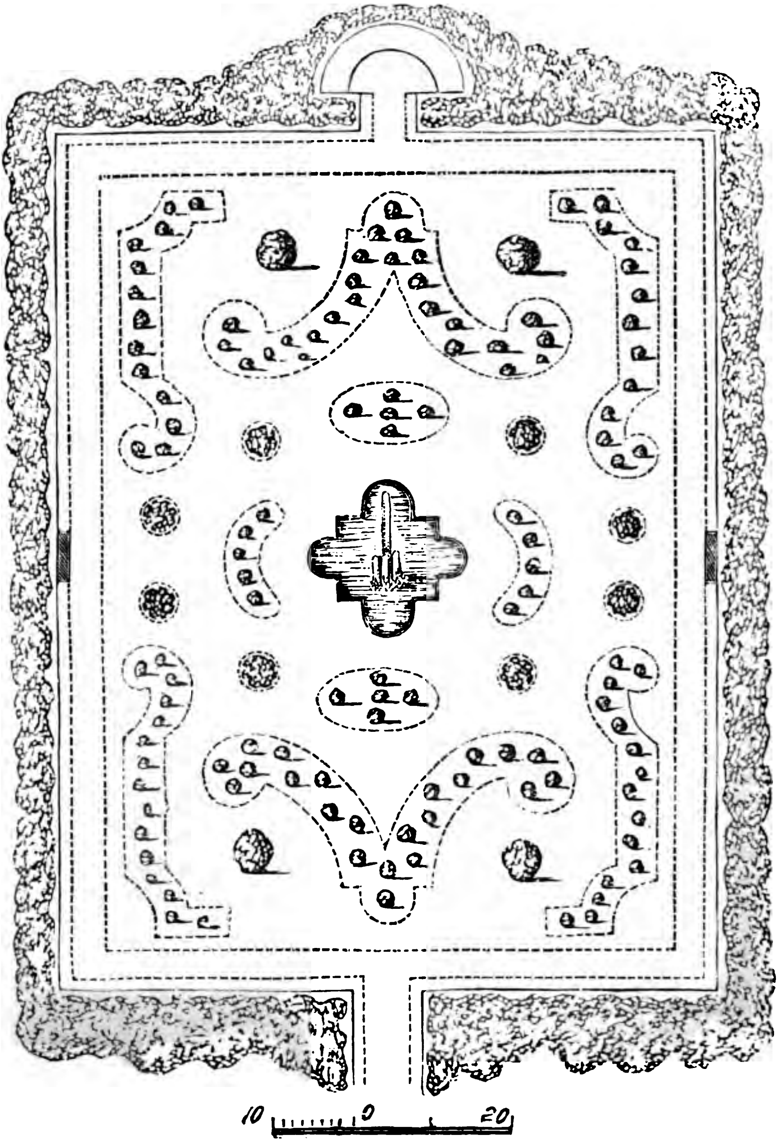
BY W. BURLEY, CHISWICK.

THIS tribe is the handsomest among the "everlastings," whether we regard the beauty and profusion of the flowers, or the habit of the plants, and are deserving of more general cultivation. In the hope of inducing some who may not have attempted to commence the management of a small collection, I forward a brief outline of their treatment, as practised by me with much success, and shall be happy should you deem it worthy of a corner in your wide-spread little work.

First, as to propagation: young shoots are best for this purpose, and such should be chosen as are become firm towards the bottom, and exhibit no signs of bloom. The proper time to put them in is towards the end of April, or the commencement of the following month; they should be cut clean across at the base with a very sharp knife, and the scales or leaves dressed off for about an inch. Procure small pots, put in plenty of crocks to ensure thorough drainage, over which place a layer of fibrous peat, and then fill up with silver sand, which must be well damped, and the cuttings inserted. The small pot containing the cuttings I always place inside a larger one, filling up the space between the two with sand, and covering with a bell-gass, which fits within the rim of the larger one. In sunny weather they require shading, and, when water is given, the bell-glass should be left off until the sand is dry at top. The proper place for them at this time is a gentle hotbed. In a few days the glass may be slightly raised towards evening, to admit a little air, and prevent the fatal effects of damp; when the cuttings have made some root they may be taken off for good, and when fully rooted pot off into small pots and place them in a cool frame, shading them in hot sun, and here they may be kept during summer. Many prefer to purchase young plants rather than incur the trouble and care of propagating them, and for this purpose select young plants which are short and robust in their growth, and in small pots. Such plants should be immediately shifted, and if they have plenty of roots they should be loosened previously to repotting. The soil most conducive to their well-being is composed of fibrous peat, with about one-half of silver sand, or any sand of a hard, clean, and gritty character, a very small portion of loam, and a few little bits of broken pots and pieces of charcoal; in this the plants will rapidly improve, and as they make progress and the pots become filled with rootlets, they will require shifting into a size larger. If the young plants are procured in spring, they may have two shifts the first season; and to make shrubby plants the shoots should be stopped, as well as to prevent the formation of flowering buds the first season. The next year they may be allowed to bloom, after which it is necessary to prune them in somewhat, cutting in the long flowering shoots, and repotting the plant. In winter, water must be very carefully administered, although the soil should never be allowed to become absolutely dry. When the spring growth sets in more water is required, and as the bloom begins to show, some very dilute manure-water may be given about twice a week, and the syringe can be frequently used over the head of the plants, which greatly contributes to their health and vigour. In spring the plants require a temperature of about fifty degrees, with a free circulation of air, but cold draughts must be carefully excluded, and as summer approaches, the temperature increasing, the pots should be shaded from the great heats of the sun. In early autumn they may be plunged in a cold pit and fully exposed, putting on the lights only in heavy rains and as the cold nights draw on; by the middle of October they should be removed to the greenhouse, and in winter the temperature should never be allowed to descend much below fifty at night. The beautiful blossoms of the Aphelexis may be preserved for years, if kept free from dust and damp, and make handsome winter bouquets, associated with flowers of the Gnaphaliums, Helichrysums, and dried Grasses, as *Briza maxima, Stipa pennata,* etc., as well as the dried capsules of the pretty red *Physalis Alkekengi.* The following brief list comprises some of the best Aphelexises at present in cultivation:—*A. humilis,* var. *grandiflora,* rosy purple; *rosea,* fine dwarf rose; *macrantha purpurea,* the best dwarf purple variety; *prolifera,* var. *Barnesi,* very distinct, purple, foliage knotted; *Barnesi,* the largest and finest, rosy pink; *rupestris grandiflora,* rosy crimson; *speciosissimus,* rosy purple; *venusta,* a very distinct kind, with small flowers in bunches.

DESIGN FOR A FLOWER GARDEN.

BY T. RUTGER, ESQ.



The annexed is a sketch of a flower garden enclosed within a shrubbery. The pond in the centre, with a fountain, may be stocked with gold and silver fish, or a flower bed may occupy its place if preferred. The small round clumps are all intended for masses, and the other portions of the garden to be dedicated to a mixture of such flowers as the proprietor may select. It will be perceived that there is a walk round the garden, inside the shrubbery, which leads to an alcove, or covered seat at the end. Seats one on each side round the garden are also indicated.

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REMARKS ON PENTSTEMONS, WITH A DESCRIPTIVE LIST.

BY MR. C. JOHNSTONE, HACKNEY.

FEW plants make so fine a display for our beds and borders as the Pentstemon during summer and autumn, and some of the species in the spring; indeed, this tribe is worthy of being grown wherever herbaceous plants can be cultivated. A bed devoted to a choice selection will make a gay and very beautiful display of bloom during the whole of summer, and until towards the approach of winter frost. Some varieties also grow and look well in rockwork. Their cultivation is easy, and they require but little trouble to have them bloom in perfection. Almost any common good garden loam suits them, though a light compost is better, and the situation somewhat dry. A mixture of light loam and peat is what they do best in. Being generally hardy or half-hardy plants, they suffer less from cold than they do from damp; in winter they are apt to damp off, unless precaution be observed in that respect. It is a good plan to take off cuttings of all the kinds grown, in September, keeping them in a pit, greenhouse, or other dry place, until the return of spring, when they may be planted out into a bed prepared for them; the taller-growing varieties in the centre, and the dwarfs around the edge. Many may also be readily propagated by seed, or division of the roots. To make them bloom late and strongly, the early flowering buds may be pinched out as soon as they appear. They are all natives of the New World, and certainly rank with the best of the many herbaceous plants we have received from thence. The following list may be relied on as strictly correct, and will assist the amateur in making a selection according to his means and requirements.

ANGUSTIFOLIUM.—A species with narrow serrated foliage, bushy habit, grows a foot and a half high, flowers light crimson-purple. Introduced from Louisiana in 1811.

ARGUTUM.—A very pretty border plant, grows about a foot high, flowers free, of a purplish blue. It requires to be propagated each season, as the old plants are apt to die off in the winter. It was brought from Columbia in 1811.

AZUREUM.—A neat sub-shrubby plant, attaining from two to three feet in height, very branching, and produces numerous spikes of its beautiful blue flowers. It is highly ornamental throughout the entire summer season. It was discovered by Mr. Hartweg on the mountains of California.

BACCHARIFOLIUM.—A distinct and pretty species from Texas. It is a half-shrubby plant, growing near two feet high, scarlet-red flowers, and neat foliage.

CAMPANULATUM.—A compact grower, attains about a foot and a half high, flowers reddish purple, bell shaped. It is an old species, having been introduced from Mexico in 1794.

COBŒA.—This very showy species ought to be in every collection of this tribe. It is a highly ornamental sub-shrubby species, fine glossy foliage and large blossoms, white, tinged with purple, outside; inside, white, with a yellow throat, spotted and streaked with red; it grows about two feet high. It is unfortunately rather liable to be attacked with mildew, which, with a little attention to the application of sulphur, may be prevented. This species was brought from Texas in 1835.

CONFERTUM.—A rather insignificant species, with small light flowers, tinged with purple; it grows about a foot high. Introduced from North America in 1827.

CONATUS.—A useful border plant, but of rather coarse appearance; it grows about eighteen inches high. The foliage is clothed with soft hairs, the flowers are light purple outside and white within, spotted throat, bell shaped.

CORDIFOLIUM.—A really shrubby species, forming a spreading shrub. The flowers are narrow, tubular shaped, red. A distinct but not very showy plant. Introduced by Mr. Hartweg from California.

CRASSIFOLIUM.—A free-flowering suffruticose species, growing about a foot high. Its blossoms are abundant, of a pretty lilac and rose colour. Discovered by Mr. Douglas in North-west America.

CYANANTHUS.—A beautiful hardy herbaceous plant. A native of the Rocky Mountains. The numerous compactly arranged and handsome blue flowers have a fine effect, being produced in a spike a foot long. This species will require attention to prevent mildew, by sulphuring. It grows nearly two feet high.

DIFFUSUM.—A rather coarse grower, attaining about two feet in height, flowers freely, of a reddish purple. Discovered by Mr. Douglas, near the mouth of the Columbia River, in 1826.

GENTIANOIDES.—The true species is of robust habit, growing from three to four feet high, and producing purplish blue flowers, of a bell form.

GENTIANOIDES ATRO-CÆRULEUM.—A vigorous-growing hybrid of the last-named species; it attains three feet in height, and blooms freely. The flowers are large, of a bright purple, with a white throat.

GENTIANOIDES ELEGANS.—A handsome-flowering hybrid, with light carmine-coloured flowers; it grows about a foot and a half high.

GENTIANOIDES M'EWENI, is of a compact bushy habit, growing about fifteen inches high. The flowers are of moderate size and very abundant, carmine-red, with a white throat. It is a fine border plant.

GORDONI.—This handsome species is a native of North America. It is a half-shrubby plant, growing about a foot and a half high, flowers lilac-blue.

HARTWEGI, usually known as *Gentianoides*, having a dwarf-spreading habit, with purple-crimson flowers, large and showy. Well worth cultivating.

HARTWEGI ALBUM.—It is a very useful variety, being white. Its flowers contrast well with the generality of this family, the majority of which are different shades of crimson, blue, and purple. It is a vigorous grower of the half-shrubby class, and forms a pretty bush, two to three feet high. Its spikes of clear white flowers are, when well grown, near a foot long, and the flowers large.

HARTWEGI ATROPURPUREUM.—A showy-flowering variety, with bright purple-red flowers; it is of a robust habit.

HARTWEGI BUCKI (generally known as *Verplanki*).—One of the most beautiful of the genus. It is a very vigorous grower, attaining three to four feet high, and produces large panicles of bloom. The flowers are deep red, and as they advance in age become various shades of salmon-rose; the throat is white, and very large.

HARTWEGI CLOWESI.— A very elegant variety, combining in its flowers bright scarlet and pure white throat, which contrast well. It is not so close in habit as some of this class; but, nevertheless, is indispensable in a collection of Pentstemons. It grows about a foot and a half high, and produces its large flowers freely.

HARTWEGI COCCINEUM.—A scarlet-red variety, of close habit.

HARTWEGI GRANDIS.—A hybrid, with large flowers of a purple-blue.

HARTWEGI SHEPHERDI.—One of the best of the genus, growing to about two feet high. The flowers are large, of a brighter scarlet than *Hartwegi*.

HARTWEGI VARIABILIS.—A very pretty variety. The flowers are of various shades, from near a pure white to a rose colour, pencilled with crimson; a very pretty hybrid.

HETEROPHYLLUM.—This species was discovered by Douglas in California, in 1834. It is a half-shrubby plant, growing two feet high. The flowers are of a clear lilac-pink, produced in abundance. It is a distinct and pretty species.

HIRSUTUM.—Grows about eighteen inches high, large foliage; flowers of a pale purple and white. A very old species, but distinct and showy. It was introduced as long ago as 1758, from North America.

Lævigatum.—An old but interesting species. Discovered in North America in 1776. It grows about a foot and a half high; flowers in the spring, of a pretty lilac.

Miniatum.—Obtained from the North of Mexico. It is a sub-shrubby species. The flowers are rich vermilion-scarlet.

Nitidum.—A dwarf-spreading species, with shining green foliage. The flower-stems rise about nine inches high, half of which bear close whorls of lilac-blue flowers. It is a profuse bloomer, and should be in every collection.

Ovatum.—A native of the mountains of Columbia, from whence it was introduced in 1826. It is a very showy perennial, growing two to three feet high; the flowers are in whorls, on a leafy panicle; they are a beautiful clear blue. It is a very handsome species, and ought to be more generally cultivated.

Procerum.—A dwarf-growing species, with lilac and pale purple flowers, which are produced in the spring months. It was discovered in North America in 1827.

Pubescens.—As the name denotes, this species has hairy foliage; it grows about a foot and a half high; flowers light purple. It was introduced from the same locality as the last species in 1758.

Pulchellum.—Brought from Mexico in 1827. It is of neat habit, grows about two feet high; flowers of a rosy lilac.

Roseum.—A pretty flowering and neat-growing species, of about eighteen inches high; flowers of a rosy red. It was introduced from Mexico in 1825.

Speciosum.—A bed of this plant when properly grown, and in full bloom, is exceedingly attractive. The fine dark and sky blue flowers, so profusely produced and so neat in form, render it a very desirable plant. It is best raised from seed, which ripens freely at the close of summer; it should be sown as soon as gathered, and potted off in spring. It was introduced in 1827 from North America.

Themestri.—A compact bushy-growing species, two to three feet high. A profuse bloomer; flowers bright rose, two inches long. It is a distinct and showy plant.

Venustum.—A handsome and close-growing kind, which attains about eighteen inches high; its flowers are of a bright rosy-purple. It was discovered in North America in 1827.

Wrighti.—A very distinct and pretty species from Texas, in North America; it grows two to three feet high, and flowers freely. The branching spikes of bloom are from one to two feet long; the flowers, which are bright rosy carmine, have a very short tube and a spreading limb. The foliage is glaucous, of a bright green.

OBSERVATIONS ON THE HOLLYHOCK.

BY MR. JAMES THOMPSON.

HAVING paid considerable attention to the cultivation of this favourite flower, which is deservedly rising in the public estimation since so many excellent new varieties have been produced through the assiduity of Messrs. Chater, Baron, and other eminent florists, I may be doing a service to lovers of the Hollyhock in forwarding a few observations for insertion in the *Cabinet*, respecting the best way of managing it.

Propagation is best attained by taking cuttings, which I find make the best flowering plants; these should be taken from the crown of the old root, when about two inches long, from the middle of April to the end of May. I place them in small thumb-pots, using a light sandy loam for compost, watering them rather sparingly, and plunge them in a gentle bottom heat in a close pit. It is necessary to guard against damp, to avoid which, give air every day for a short time; they will root nicely in three weeks, when they will require repotting into large sixty-sized pots, and in a week or ten days may be then hardened off, and next introduced into a cold frame until required to be planted out in the border. The cuttings must be kept clear of all dead and withered leaves, for, if not picked off, the plants are liable to rot and mildew. Some propagate the Hollyhock by means of eyes, which are taken from the "wood" in August, when the bark is sufficiently hardened, otherwise they will be tolerably certain to rot; I do not advocate this plan, as I consider the cuttings from the root a much safer method. When propagation is performed by dividing the roots, it is well to see that sufficient rootlets are kept to each piece, and this operation is best done after they have bloomed, in autumn.

To prepare the beds for planting, they should be trenched two feet and a half deep, and the soil, which should be, if possible, light sandy loam, well incorporated with rich decomposed manure. The middle of March is the best time for putting out the plants, though many prefer autumnal planting; but I think it will be found that spring-planted ones flower equally well with the others, and if they are planted late in autumn, frost may set in and injure the roots before they have had sufficient time to establish themselves in the ground. They require to have sufficient room for the development of their roots and foliage. I generally plant in rows down the centre of beds reserved and prepared especially for them, and during the growing season give frequent and liberal supplies of liquid manure, and if the weather be dry, water them regularly in the evening. The soil round the roots should be loosened from time to time. As soon as the roots have thrown up shoots about half a foot high, they must be thinned out, leaving about four spikes on each strong root, but not more than half that number, or even only one, where the roots are small and weakly. Provide neat strong stakes, and train the shoots to these, when they attain about eighteen inches from the ground. After lateral shoots make their appearance, carefully take them off, and if the bloom-buds set too thickly together, thin them out, so that the flowers may not be too closely crowded. By planting in succession, a fine display of bloom will be secured until the approach of the winter months, although August more especially is the Hollyhock's own month. Unless guarded against, slugs and snails are liable to infest the plants; but this may be remedied to a considerable extent by a sprinkling of quick-lime and soot, occasionally applied, on the soil around the plants. When the flowering season is over, the stems should be cut down to about six inches, and the crowns of the roots earthed up with dry sand, which will prevent the roots being injured by moisture and too much damp during the winter.

Seed may be sown soon after it is gathered, and fully ripe; light sandy loam is best for the purpose, and the pots may be plunged in a gentle hotbed. It is well to withhold water if the soil be tolerably moist, or to administer it with a sparing hand (although never allow it to become quite dry), until the seed-leaves are fully developed. As soon as the young plants will bear it, they must be carefully potted off, and set in a cold frame, admitting a free play of air among them at all suitable times during winter, and when March arrives, they will bear turning out into the open ground. Late-gathered seed, however, should be kept in a dry cool place, until the end of April, when it may be sown in a border out of doors.

MIMULUSES.

BY CLERICUS.

NOWHERE have I seen these gay flowers so extensively grown, it appears to me, as their merits justly deserve, numbering among them so many beautiful varieties. They are a decided acquisition to the greenhouse, flowering rather early in the season, and bearing a succession of blossoms of much variety in marking and tints; under proper management, by taking off cuttings or suckers in succession, they may be made to yield a display from early in spring to the close of autumn. To make large plants and secure fine flowers, care must be exercised that they do not receive a check when their growth has started in spring, and the most suitable time to commence with them is, I believe, the middle of February. I take off suckers already rooted, and all the strong cuttings I can, as soon as possible after the growth has commenced. I use a good compost, with some river sand well incorporated, and place each in a small pot to itself, and if a hotbed is handy, I prefer to plunge them in; if not, I place them in a warm house, which gives them a fair start as soon as they make roots, which they are not long in doing. The young plants must never be permitted to get dry, for being naturally river plants, they delight in abundance of water. They will require repotting in pots a few sizes larger, to give them a liberal shift, as soon as the pots are filled with roots. When long enough, the side branches will require sticks to secure them from accident by wind, etc. Good maiden loam, well-decomposed manure, and plenty of coarse river sand is the most suitable compost for them. In this mixture they will grow vigorously, and may be shifted every three weeks until they attain to twelve-inch pots, for large specimens. When the growth is made, a cool shady place in the greenhouse, where there is a free circulation of air, must be provided for them, and they will make handsome objects for a considerable period. Out of doors also they are very useful in the flower garden, and make very attractive beds, even in moist situations, where few other plants will succeed, as these naturally grow in such places. The borders of a piece of ornamental water may be edged with them with good effect. *Mimulus cardinalis* and its varieties make capital shrubby plants for borders as well as for pots, being hardy perennials, and keep up a fine display in mass during the months of autumn. One of these, named *M'Lainii*, has a deep, velvety crimson blotch in the throat, and is especially handsome, although all are *good*.

REMARKS ON THE FRANCISCEA.

BY MR. W. GAINES.

SELDOM do we meet with a genus possessing more desirable qualities than the above named. Franciscea are easily grown, profuse flowering, and within the reach of all who possess the means of giving a moderate stove heat, or even a warm greenhouse; the prevailing colours of the known species are white, blue, lilac, and purple, added to which the foliage is handsome and the plants of good habit. The treatment required by them may be summed up in a few words, and having for years made a display with these plants with means rather limited, I may be permitted to offer the result of my experience. During winter they are placed in a cool pit, and preserved from frost. Early in March, when nearly destitute of leaves, I repot them, in a compost made of equal portions of peat, loam, leaf-mould, and a little sand; this soil suits them admirably. After being repotted, I place them in a gentle hotbed, plunged to the rims; the internal heat should not exceed 50° at first, but in three weeks may be permitted to rise to 60° by day, and kept at 55° by night. As the foliage increases, I gradually augment the quantity of water given to them, and when fully expanded liquid manure is occasionally used instead of water; but such a stimulant as liquid manure requires to be used sparingly, or the plants are thrown too much into leaf. When coming into flower the quantity of water I give them is great; the foliage is syringed frequently, and an occasional use is made of the sponge. When removed to a warm greenhouse or moderate stove, they will flower handsomely, and repay the little attention they have received by abundance of large-sized and full-coloured blossoms. Propagation is effected by cuttings in the usual manner; young shoots in sand, covered with a bell-glass, root quickly. Young plants must have a little care bestowed to make them nicely formed, by training and tying the branches to form good heads. I have now under cultivation all the species I have been able to procure, of which the following is a descriptive list. *Franciscea acuminata* (syn. *Pohliana*), lilac, or lavender colour, very free blooming, but the foliage is not above medium size. *F. augusta* (syn. *ramosissima*), colour lavender, habit dwarf, compact, and neat, a free-blooming variety. *F. confertifolia* (syn. *laurifolia*), pale blue flowers of extra size, and fragrant, a fine trusser. *F. eximia*, a handsome species, flowers large, lilac-blue, foliage very fine, of a beautiful green. *F. Hopeana* (syn. *uniflora*), an old species, free blooming, blue and white, habit neat, and foliage rather small. *F. hydrangœformis*, pale purple flowers, borne in large heads, leaves fine and long. *F. latifolia*, a handsome old variety, deserving of more general cultivation; well-grown specimens make handsome objects, the foliage of a very cheerful green, and the habit good; blossoms large, changeable in colour, from light blue to pure white; flowers of both being on the plant at the same time present a pretty appearance, and last a considerable period. *F. macrophylla*, blue, the heads of bloom very large, remaining in flower a long time, foliage fine and broad.

NOTES ON NEW AND SELECT PLANTS.

PRIMULA EROSA. Nat. Ord. *Primulaceæ*. Syn. *P. denticulata*, var. *erosa*.—This species was discovered by Dr. Wallich about the year 1820. It inhabits the district of Kamoon, in the Himalaya Mountains; its introduction, however, to Europe is very recent. It somewhat resembles the beautiful *P. denticulata* in the colour of its flowers, being of a pale lilac, with a yellow eye; they are of a superior size, and are borne in larger heads. The foliage is not farinaceous, as in the preceding species, being glabrous and more robust. It is hardy and attractive. (*Flore des Serres*, 1147.)

2. SALVIA BOLIVIANA. Nat. Ord. *Labiatæ*.—Among upwards of four hundred species of Sages already known and described, it is not easy to discover whether such as approach very nearly to others are really distinct. This embarrassment is felt in connection with the present species. The plant is erect, rather branched, and attaining about eighteen inches high; the leaves are a lively green, cordate,

and rough. The branches are terminated by a cluster of six to ten flowers, carmine-red, each about an inch in length. The flower somewhat resembles a Cuphea in size and appearance, and is remarkable for the shortness of its upper lip. The calyx and pedicels are pubescent, and of a rufous purple. As the name implies, it is supposed to be a native of Bolivia. It promises to be a good bedding plant, from its dwarf, compact, and free-blooming habit. (*Flore des Serres*, 1148.)

3. BULBOCODIUM VERNUM. Nat. Ord. *Colchicaceæ.*—This old inhabitant of our gardens is found growing in the mountainous regions of Southern Europe, as Dauphiné, the Pyrenees, Switzerland, Spain, and Italy. It is, as the name would indicate, a spring-flowering bulb, differing in this respect from the Colchicums. The flowers appear to spring almost immediately from the ground, and are of a lively lilac. It is worthy of being more cultivated, although very old. (*Flore des Serres*, 1149.)

4. DIANTHUS SINENSIS, *vars.* Nat. Ord. *Caryophylleæ.*—M. Van Houtte has given a plate of fifteen beautiful varieties of Indian Pinks, both single and double. This elegant plant was originally introduced from China to France about the commencement of the eighteenth century, and was first described by Tournefort, in the "Mémoires de l'Académie des Sciences," for the year 1705. Its introduction to England, according to Sweet, appears to have been delayed, however, until 1713. (*Flore des Serres*, 1150.)

5. WISTARIA FRUTESCENS, *var.* MAGNIFICA. Nat. Ord. *Leguminosæ.* Syn. *Glycine frutescens.*—For more than a century before the introduction of the Glycine of China, Europe possessed the American species, now named *Wistaria frutescens*, of which the present is a hybrid variety, raised from seed by M. Delaville, sen., gardener near Clermont (Oise). The flowers are borne in graceful clusters, of a pale lilac, with a yellow spot. It is said to exceed others in the abundance of its bloom, which makes its appearance towards the close of June. The readiest method of propagating it is by grafting. (*Flore des Serres*, 1151.)

6. BARBACENIA, *vars.* Nat. Ord *Vellozieæ.*—These varieties, six in number, were originated in the establishment of M. Van Houtte, and are the result of a cross between *B. purpurea* and *B. sanguinea.* They are much admired for the brilliant tints of carmine and purple which the flowers display. The habit is dwarf and neat, while their attraction is much heightened by the length of time during which they continue in bloom. They require a moderate temperature, and are propagated very readily from seed. We hope more attention may now be directed to the production of hybrids of this pretty genus. (*Flore des Serres*, 1152.)

7. COLCHICUM VARIEGATUM. Nat. Ord. *Colchicaceæ.* — The seventeenth century is noted for the great estimation in which flowering bulbs were held; without speaking of the passion for Tulips, it may suffice to say that if we inspect the works which appeared dur-

ing that century, treating of botany, and gardening, we shall perceive the prominence which is there given to many beautiful forms of Lilium, Iris, Colchicum, and other analogous plants which are comprised under the vague denomination of bulbs. One work, the "*Paradisi in sole paradisus terrestris;*" or, "A Garden of Pleasant Flowers," by John Parkinson, apothecary of London, will illustrate the fact. In this curious folio, published in 1629, we find figures of a considerable number of flowers at that time cultivated in English gardens. We there find figures of several species or varieties of Colchicums, which we do not see now even in the best gardens, public or private; among these the present species is described under the name of *Colchicum fritillaricum chiense,* the latter word indicating the locality whence it was supposed to originate, the isle of Scio, in the Greek Archipelago. It is, however, known to be equally common throughout the Levant. *C. variegatum,* the checkered Lilac, is an autumnal-flowering species, and at that time of the year is a great ornament of the parterre. It is probably the species which furnished the *Hermodact* bulbs, a medicinal article formerly of great repute, though at present less frequently employed, and it is doubtless the *Hermodactylos* of the Greeks and Arabians. An excellent figure appears in *Flore des Serres,* 1153.

8. SALVIA SPLENDENS, *var.* SOUCHETI. Nat. Ord. *Labiatæ.* Syn. *L. Brasiliensis.*—This is is a very handsome Salvia, raised from seed at Paris, and is the type of the short, shrubby class. The flowers are numerous, bright orange-scarlet, an inch and a half in length, with calyces and peduncles of the same high colour. (*Flore des Serres,* 1154.)

9. THALICTRUM ANEMONOIDES, *var.* FLORE PLENO. Nat. Ord. *Ranunculaceæ.*—A very interesting little plant, perfectly hardy, a native of North America, and although introduced to British gardens so far back as 1768, through the instrumentality of Bartram, it is not so generally cultivated as it justly merits. In size and appearance the flowers, which are white, resemble those of a double Hepatica, and the foliage is remarkably neat; it is of compact habit, and grows about six inches high. (*Flore des Serres,* 1155.)

10. LEPERIZA LATIFOLIA. Nat. Ord. *Amaryllideæ.*—An ornamental bulb from South America, inhabiting woody, shaded places, in the Province of Tarma, Andes of Peru. It was first detected by Messrs. Ruiz and Pavon, by whom it was placed with the Pancratiums; but the learned author of the "Amaryllidaceæ" has founded on it the genus *Leperiza,* and at present it forms the only known species. Bulbs have been sent to Kew by John M'Lean, Esq., of Lima. The flowers are pendent, yellow, tipped with green, about two inches long, or, including the ovary, two and a half; the bulb is moderately large. The flowers appear early in September, and the plant requires greenhouse treatment. (*Bot. Mag.,* 4952.)

11. CASTANEA CHRYSOPHYLLA. Nat. Ord. *Cupuliferæ.*—This remarkable Chestnut was discovered by Mr. David Douglas, in 1830, near the great rapids of the Columbia (Oregon), and near Mount

Hood, in North-west America, where it grows on the hills. It has since been detected in California. One single plant, reared from seeds sent by Burke from the latter country, has vegetated at Kew, and may be seen in the Arboretum there, where it is now about five feet high. The young tree bears our severest winters perfectly unharmed. The under sides of the leaves are of a clear yellow, contrasting well with the deep green of the upper, and giving it a singular appearance. In its native habitat it forms a handsome tree, varying in height from twenty to seventy feet. The leaves are the smallest of any of the chestnut kind, being under three inches long, glabrous, and very dark green above; the golden hue of the under side, which has given rise to the specific name, arises from a multitude of minute scales. (*Bot. Mag.*, 4953.)

12. SINNINGIA YOUNGIANA. Nat. Ord. *Gesneriaceæ.* A cross between *Sinningia velutina* and *Ligeria* (Gloxinia) *speciosa,* raised some years ago by Mr. Marnock. The flowers, which resemble the Gloxinia in form, are solitary, two inches in length, pale purple or violet, the tube yellowish white at the base, and the throat spotted. The plant grows from a foot to eighteen inches high. (*Bot Mag.*, 4954.)

13. TRICYRTIS PILOSA. Nat Ord. *Uvularieæ.* Originally discovered by Dr. Wallich, at Sheopore and Chandagiry, in India; it has also been detected in Sikkim, by Drs. Hooker and Thomson, who sent seeds to Kew. The stems are herbaceous, a foot or more in height, branched, and nearly the whole plant covered with short hairs. The leaves are cordate-ovate, soft and downy; the flowers solitary, erect; sepals six in number, at first erect, then spreading out horizontally, of a whitish green colour, internally spotted with purple, the three outer ones provided with a large sac or pouch at the base. (*Bot. Mag.*, 4955.)

14. LINUM GRANDIFLORUM. Nat. Ord. *Lineæ.*—Lately introduced to European gardens from Algiers. The beauty of this annual needs but to be seen to be appreciated. It is said to do well out of doors in the open border, although the specimens we have seen were kept in a cool greenhouse, and bloomed in the month of August. It has been noticed in a previous number of this work, to which we refer our readers for its further history. (*Bot. Mag.*, 4956.)

15. MELASTOMA DENTICULATUM. Nat Ord. *Melastomaceæ.*—A moderately small shrub, a good deal branched, which latter are reddish and rough; the leaves handsome and large, dark green above and pale beneath. Flowers borne in small corymbs of five or six, petals nearly white, with a tinge of pink, an inch and a half across the flower. It is an inhabitant of New Caledonia, one of the South Sea Islands, where it was first discovered by Labillardiere. (*Bot. Mag.*, 4957.)

15. CYPRIPEDIUM LOWEI. Nat. Ord. *Orchidaceæ.*—A native of Borneo, being common in the neighbourhood of Sarawak, whence it was introduced in 1847. When found in its wild state it bears from eight to ten flowers on each stem. It is a very handsome species, the

lip being smooth, of a purplish green; the sepals green, with a purple tinge near the base; the petals are very long, being more than three inches, curving gracefully downwards, narrow towards the base, blotched with brown spots on a greenish yellow ground, and rose coloured at the ends, which are double the width of any other part. It is a very desirable acquisition, and of easy culture. (*Journ. Hort. Soc.*)

16. Veronica Syriaca. Nat. Ord. *Scrophularineæ.*—A new plant, well adapted for bedding purposes, of which seed has been received by Messrs. Henderson, Wellington Nursery, through Messrs. Ernst and Sprekelsen, of Hamburg. It is an annual of very dwarf habit, not attaining more than about eight inches, and bears abundance of flowers, the upper petals of which are of a beautiful intense blue, resembling that of the blue Gentiana, the lower ones white; it is very compact, the foliage ample, and of a fine green.

FLORICULTURAL OPERATIONS FOR JANUARY.

IN THE FLOWER GARDEN.

General Operations.—*Climbing Plants* against walls, trellises, etc., should be pruned and properly trained. *Composts* should be collected and well turned over during severe weather, in order to assist in mellowing and pulverizing them. Where good mellow loam is obtainable, it should be collected, taking care the turf be not cut away, the fibre being essential to good composts. Peat-soil should also be provided, with grass fibre in it, and put by in a dry place to decay. *Dead and withered leaves*, as well as plants killed by frost, remove. *Deciduous Shrubs*, plant; take care not to expose the roots to frosty air. *Edgings* of box, slate, and tiles may be laid, and old ones kept in good order. *Evergreens*, the hardier kinds, such as Laurels and Hollies, may be planted; water over the roots after planting, to settle the soil among the roots. *Grass*, roll and sweep; lawns may be turfed. *Hedges*, plant and trim. *Implements*, during wet and frosty weather see to all these, that they are in proper order for working. *Loam*, all flower-beds should have an addition of one-third, with some rotten manure and leaf-soil, a portion of the old soil being removed, so that the beds may not be too high, or they become dry in summer. The upper or central part of the bed, in which the most robust-growing plants are to be, should always be of the richest kind, to encourage the plants to grow rapidly at first, and the bottom portion being poorer, when the roots push into it, the growth of the foliage will be checked, and the bloom finer and more abundant. *Planting*, proceed with in favourable weather. *Plants out of bloom*, cut down and remove the stems. *Prune* such trees and shrubs as require it, be careful with evergreens. *Seedlings* and young plants require protection according to their hardiness and strength. *Seeds*, dress out during inclement weather; if they should have become in any degree damp, they must previously be placed in a room with a slow fire, and turned over for a day or two. *Stakes*, labels, and pegs, prepare for summer use. *Trenching* may be done to such ground as requires it, when weather permits. *Vermin*, rats, mice, slugs, etc., destroy whenever found. *Walks* should be attended to as to rolling, and kept clean. *Weeds* destroy everywhere. *Wheeling*, any operation requiring much use of the wheelbarrow should be done when the ground is rendered hard by frost, to avoid injury to walks, grass, etc.

Cultural Department.—*Anemones*, when planted in autumn, protect the beds with dry leaves or mats, to keep them from drenching rains or severe frosts. In forming beds proceed as for Ranunculuses. They may yet be planted in dry weather. *Annuals* sown in autumn must be kept free from falling leaves, or other litter, likely to rot them. At the close of the month a few more may be sown for succession. *Bulbs*, protect beds of; if the embryo flowers or leaves should be affected by frost, even when in the ground, their blossoms will be defective. When grown in glasses, they require to be placed in an airy and light situation when coming into bloom; the water should be changed three or four times a week. *Carnations and Picotees*, when they are likely to be attacked by hares and rabbits, sprinkle the plants with soot, and it will preserve them; prepare compost for the show plants, by turning it often, and keep it from snow. *Chrysanthemums* should have a slight protection of leaves, etc., to guard from frost. *Dahlias*, the dry roots should be examined to see that they are keeping soundly, or where decayed dress off. Trench the ground for them next season, which may be thrown up rough till time for planting out. *Pansies* should be protected from winds, by having a hedge of fir branches stuck round the beds; prick a few twigs amongst the plants, to prevent their being twisted. The surface soil should be stirred occasionally, to admit air and moisture; see that it be not withdrawn away from the stems. In open weather give a top-dressing of decayed leaves and a little soot. *Pinks*, after frost, press the soil around the stems, or they may be laid bare. *Ranunculuses*, autumn-planted beds of, must be protected from frost. Where the beds are not yet made for spring planting commence without delay; throw out the soil half a yard deep, in order to sweeten it for the proper formation and planting. The beds must be made of loam and well-rotted manure, thoroughly mixed. *Roses*, protect the heads of tender kinds by dried fern or spruce-fir branches. Plant or remove immediately, if not already done, or they will not bloom this season. Sprinkle freely overhead with soot and lime-water, to destroy moss or insects; secure standards to stakes, and see to their labels. *Shrubs*, hardy deciduous, cuttings may now be put in, pressing the soil firmly around them; these should be cut off close below a bud. Layers of evergreen privet and others may now be made. Evergreens can be removed, but autumn planting is recommended.

IN THE GREENHOUSE, COLD-PIT, AND FRAME.

GENERAL OPERATIONS.—*Air*, give abundance on all mild occasions, especially to Heaths and New Holland plants. Whenever the weather is damp or foggy, it is advisable to give circulation to the air in the house by means of a little fire; this is a great advantage to the health of the plants. *Cold-pits* should have the floor covered with coal-tar and sand incorporated, and at a sufficient slope to allow water to run off quickly. Porous materials cause damp. *Coverings*, straw or fern, protected by a single mat over it, to prevent its blowing about, is cheaper and more effective than three or four mats laid close over each other; sufficient should be provided for all occasions. *Cuttings* will be found to root better early in the season than at an earlier period. *Decayed Leaves*, plants should be looked over and all decaying foliage removed. *Mildew*, guard against this by a timely application of sulphur. *Prune* all climbing plants which produce flowers on the young wood, if not previously done. *Water*, it is always advisable at this period to administer this in the early part of the day, that the damp may dry up. The heat maintained this month in the greenhouse, where few hard-wooded plants are grown, should be about 45° at night and 55° by day.

CULTURAL DEPARTMENT. IN THE COLD-PIT AND FRAME.—*Alpines*, in fine weather, will require plenty of air. If very severe, a few dry leaves or fern will be a protection; uncover whenever weather permits. Little water is necessary at this dormant season; give it to those only which seem to be drooping. Remove decayed foliage. *Annuals, hardy*, if omitted in the open border in autumn, a few may be sown in pots, and placed in a frame free from frost, ready to turn out in April. *Antirrhinums*, allow all dry air possible, to prevent them from prematurely running to bloom; dress off decayed leaves. *Auriculas* require abundance of air when dry weather, only save them from frost and drying harsh winds, also excess of water. Sow seed early in pans, in a compost of leaf-soil and silver sand, sifted fine, allowing plenty of drainage; cover very thinly, and place in a shady part of a cold-pit. *Carnations and Picotees*, supply liberally with air; if attacked by mildew, dust well over with sulphur; should any leaves show spots remove the plants immediately. Protect from frost and excess of wet. *Chrysanthemums*, admit air freely, in order to strengthen the shoots for cuttings in April. *Dahlias*, to propagate early, put the roots in pots, or place them where they can have bottom heat, which will soon cause them to produce shoots for cuttings. Sow seed in light rich soil in pans, and place in a hotbed; careful attention must be given to keep the surface just moist. If not already done, trench the ground for plants in May. *Gladioluses*, to succeed the autumn planted, may be potted and placed in a frame until vegetated. *Hollyhocks*, cuttings may be made of any spare young shoots from the old roots, place singly in small pots; in a gentle heat they will soon root. Plants in pots must be kept from excess of damp, and give all air possible, to prevent their being drawn up. If allowed to become too dry they often die. *Lobelias*, erect growing, mind they do not rot off from excess of wet; towards the end of the month place in a warm situation, and encourage offsets to grow, in order to divide and pot off singly next month. *Polyanthuses* in pots, during winter, must have all the air possible, but kept from frost and excess of wet in the centres. Stir the surface soil and keep the entire of it moist, but not too wet. Care, too, must be taken to keep free from slugs and snails. Sow seed in pans as for Auriculas. *Ranunculuses* planted in pots, place in the frame to bloom in April. *Stocks, Ten Weeks', Russian, and Prussian*, to bloom early should be sown at the end of the month in pots, and placed in a hotbed frame, or sown upon a gentle hotbed. *Succulents*, admit air to, and water sparingly. *Tender plants* in pots, in frames, require frequent attention, in order not to allow any decayed foliage, or they will be liable to rot off; water sparingly, stir the soil and top-dress them. *Verbenas* must have plenty of dry air admitted; guard against mildew and damp. To increase stock, place some of the finest plants in a hotbed to push the shoots. Stop such as are growing weakly. *Violets* that have been protected through the winter will now produce plenty of bloom; keep them free from decayed foliage and give all air possible, or they will grow weak.

IN THE GREENHOUSE.—*Annuals, half-hardy*, seed of Cockscombs, Globe Amaranthus, Schizanthus, etc., should be sown in pots, and placed in a gentle heat. *Calceolarias*, pot off seedlings in pans; repot young plants, fumigate, water when required, not wetting the foliage; stir the surface soil and remove dead leaves. *Camellias*, in bud, apply liquid manure; if allowed to become dry the flower-buds will drop off. *Cinerarias*, repot, and supply manure-water occasionally, also fumigate. *Ericas* must have free and dry air; do not allow to become too dry. *Fuchsias*, large plants now placed in heat will soon push, to strike new stock from, for summer bloom. *Pelargoniums*, repot for blooming in May and June; remove withered leaves, and fumigate. *Roses* in pots, prune and trim for bloom in April, May, and June, top-dress with rich compost; give a temperature of 45° at night, rising 10° in the day, *Shrubs*, such as Roses, Persian Lilacs, Deutzias, Jasmines, Azaleas, Ribes, etc., should be introduced from the forcing-house and placed in a warm situation. *Tropæolums*, as Jaratti, Tricolorum, Speciosum, and Azureum, should be potted.

IN THE STOVE.

GENERAL OPERATIONS.—*Bark beds*, turn and add fresh tan, to renew the heat. *Climbers*, attend to tying to the trellis such as have commenced their growth. *Heat* should not be allowed to get too high, about 55° at night and 65° by day are the extremes. If higher, the plants will become weakly and the leaves sickly, from over-excitement and want of light. *Leaves*, sponge all plants with large foliage, to remove insects and dust. *Seeds*, sow at the beginning of the month; be careful notto overwater them; those with hard shells should be steeped in water, at the temperature of about 170°, in which they may be left until the water cools. *Surface soil* in pots should be stirred and kept clear of weeds, and a little new compost added for a top-dressing.

CULTURAL DEPARTMENT.—*Achimenes*, with other plants of like habit, as *Gloxinias, Gesnerias*, etc., pot a few more to succeed those of last month; water sparingly until they push. *Allamandas*, if for early bloom, start them by plunging in bottom heat. *Eranthemums*, and other winter-flowering plants, may have a little manure-water occasionally. *Ixoras*, if plunged in tan, will bloom early. *Plants for forcing*, comprising Azaleas, Deutzias, Persian Lilacs, Ribes, Rhododendrons, Roses, etc., may be forwarded by plunging in a gentle bottom heat; when bloom-buds appear remove to a warmer house, and place near the glass, occasionally syringing. Similar treatment may be pursued with Dielytra spectabilis, Hyacinths, Lily of the Valley, Narcissuses, Tulips, and other plants for house decoration.

QUESTIONS, ANSWERS, AND REMARKS.

MISTLETOE.—I should be very much obliged if you or any of your readers could inform me what is the best method of propagating Mistletoe. None grows in this immediate neighbourhood, but I have twice, during the months of January and February, placed some of the seeds in cracks of bark on Thorns and other trees, but have never found them vegetate. I should be glad of any information on the subject.—*Mistletoe, W. S.* [The most successful plan we know of is to get some ripe berries, cut the bark on the *under side* of the branch of an old apple tree, in the shape of the letter V, raise the tongue of bark, and insert a seed, which should not be pressed very hard by the bark, but just sufficient to retain it. A few seeds thus inserted in an old apple tree will scarcely fail to "take."—ED.]

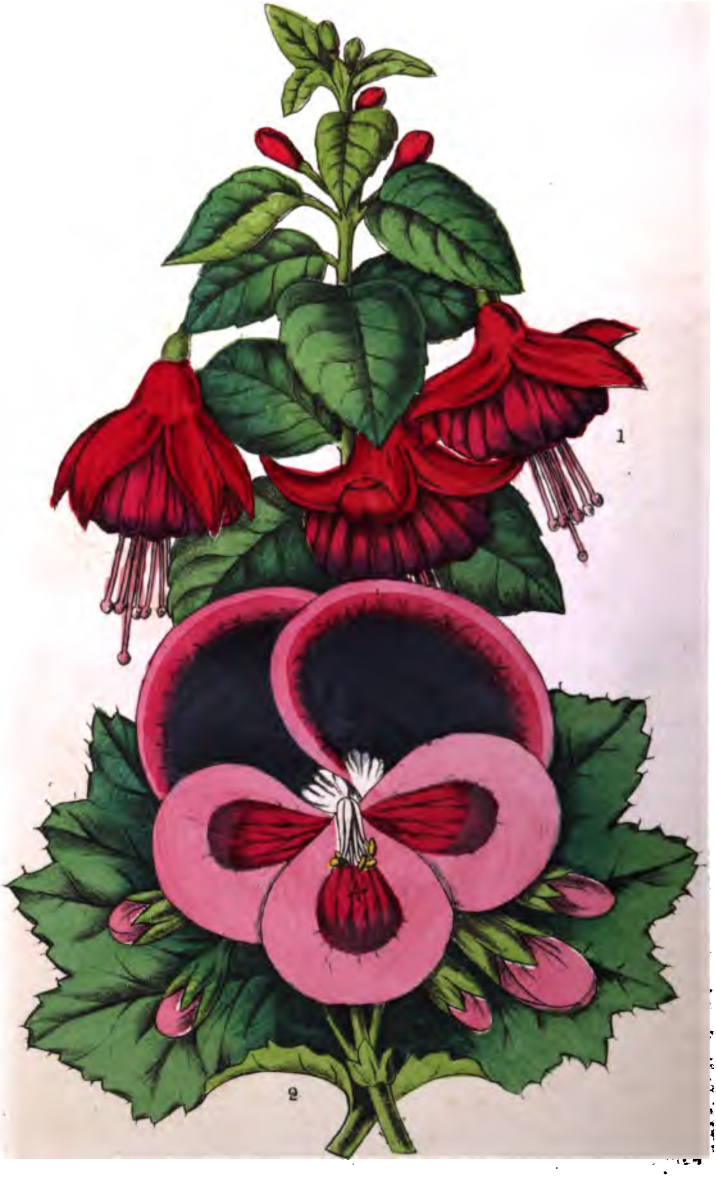
SEEDLING PANSIES.—Having saved a quantity of seed last season from some of the best show Pansies, I should be obliged to the Editor of the *Cabinet* if he would give me a few hints on the best time of sowing it, and how I am to treat the young plants.—*E. P. D., Liverpool.* [When seed is saved early in the season and is quite ripe, it is advisable to sow it as soon as gathered; but if later than the middle of August, it is better kept until the following February, when it should be sown in a gentle heat. When the seedlings have made two or three sets of leaves, they should be pricked out on a shady border of good loam, where they will bloom freely in May and June. When in bloom the best formed and most distinct flowers should be transplanted and propagated, when the weather permits.—ED.]

CYPRIPEDIUM CALCEOLUS.—I have long been in possession of *Cypripedium Calceolus;* it grows and flowers well (in June) in my garden, in a moist and shady situation, in a yellow loam. It is a native of Castle Eden Dean, in this county, but rare; I obtained it from thence. It is described at some length in the "Annals of Horticulture" for 1850, page 505, but this locality is not mentioned. I subjoin extracts relating to it from the "Transactions of the Tyneside Naturalists' Field Club," a Society which meets literally in the fields in summer, and review at intervals different districts for botanical purposes; they appoint each year one of their number as president, who at the close gives a lecture recapitulating their observations, and discoveries, if any. "It is unnecessary for me to dwell long on the beauties of a place so well known for its picturesque situation, and the numbers of rare plants it produces, as Castle Eden Dean. It is sufficient to say that when we explored it this year, all the scarce plants formerly known to grow there were seen by some one of our party, especially the rare and conspicuous *Cypripedium Calceolus*, or Lady's Slipper."—1848. "Four plants, each bearing two flowers of this pride of our northern flora were seen, but as we consider it a great treasure, and in compliance with the excellent rule of our Club, which pledges its members to prevent as far as possible the extirpation of rare species, they were left undisturbed."—*Transactions of the T. N. F. Club, vol. i. page* 213. At the anniversary meeting, 1853, it is again mentioned. "At Castle Eden Dean we still have the Lady's Slipper (I prefer the English name). It is not found elsewhere, and is becoming scarce here, from persons misappropriating what they can neither preserve nor enjoy, by vainly endeavouring to propagate in other soils plants which will only grow and flourish in their own."—*Vol. ii, page* 291. This is not exactly true, as nothing can do better than the Cypripedium in my garden, in a congenial situation; it would not flower in the common borders. From the address read to the members of the Tyneside Naturalists' Field Club, May 15th, 1856, by the owner of Castle Eden Dean, we read, "The Lady's Slipper is now so nearly extinct, that I vainly endeavoured to exhibit a native specimen of it to this Society when they last botanised the Dean in 1854. The Fly and Birdsnest Orchids have likewise been taken up, and are not likely to survive long when thus transplanted, nor are they sufficiently numerous not to bear the risk of extirpation. I must appeal to this Society to support me in preventing the offence of tearing plants from their native habitats, where alone they flourish, and delight the scientific observer, and place them to wither, in gardens, or pine, in rockwork or under glass shades." I have known half a guinea offered for a dried specimen of the *Cypripedium Calceolus.*—*F. E., County Durham.*

CYPRIPEDIUM CALCEOLUS AT INGLEBOROUGH.—Since writing the above, I have received a communication from a friend residing at Ingleborough, in Yorkshire, and which you will oblige me by inserting for the information of your Sheffield correspondent:—"In reply to your inquiries about the Lady's Slipper, it used to grow in our woods, and others around, but those mischievous botanists who dig up rare plants for sale, have quite exterminated it, and we do not know of its being wild now in our country, though it thrives pretty well in gardens. I have heard, within the last two years, of roots being sold for two or three guineas."—*F. E., County Durham.*

LONDON HORTICULTURAL SOCIETY'S MEETING, NOV. 25TH.—The first general meeting under the new council took place this day, when thirty-four new members were admitted by ballot, J. Blandy, Esq., in the chair; the attendance of members and friends was a very full one, and promises well for the Society under its new organization. Among the good things worthy of notice in our pages were the following: a new hardy Coltsfoot (*Tussilago*), from Java, by Mr. Glendenning, with large, shining green leaves, blotched with white; this will prove a valuable acquisition. Messrs. E. G. Henderson, of Wellington Road, sent a collection of specimens in all-sized pots of that exquisite little variegated plant Soncrila margaritacea, all in full bloom, the pink blossoms, borne in abundance, contrasted well with the spotted leaves; Liparis longipes, with long drooping spikes of flowers, somewhat resembling those of Mignonette—this was the first specimen exhibited; Exacum Zeylanicum, with its lovely blue flowers; Ardisia crispa, var. Sieboldii; and cut blooms of new hybrid Bouvardias, of considerable merit. Mr. Veitch had a new species of Adhatoda or Justicia, of which we were unable to ascertain the native country, the flowers were violet, with a deep blue lip. Messrs. Jackson, of Kingston, exhibited a nice collection of Orchids, Lycopods, and Ferns. From Mr. Woolly, gardener to H. B. Ker, Esq., came the finest specimen of Calanthe vestita, we ever saw, a complete mass of beauty. H. Long, Esq., of Farnham, contributed a branch Abies Cephalonica, with cones, the first produced in this country. Mr. Mant, of Bristol, sent cut blooms of the handsome Vanda cærulea, and Mr. Veitch, of the exquisite Lapageria rosea. R. Warner, Esq., Broomfield, near Chelmsford, forwarded two neat Alpine Orchids, Cattleya Walkeri and Sophronitis grandiflora. There were also two good collections of Minima or Pompone Chrysanthemums.

THE HORTICULTURAL SOCIETY.—The following are the new regulations respecting the admission and privileges of Fellows, as they are now described in the official circular of the Society. *Payments.*—The annual contributions to be paid by the Fellows are either four guineas or two guineas, as they may determine when elected. All annual contributions become due and payable on the day of the anniversary meeting in each year for the year following. Every person who shall cease to be a Fellow of the Society, or whose payments shall have been suspended as herein provided, after the 1st day of May in any year, is liable to the payment of his subscription for that year. *Privileges.*—The Fellows of the Society are entitled to the following rights and privileges: if paying four guineas a year, to participate in the distribution of plants and seeds from the garden, and to hold a transferable ivory ticket, which gives the bearer all the personal privileges of the Fellow, except attendance at special general meetings of the Society held for the transaction of corporation business. If paying two guineas a year, to participate in the distribution of seeds and cuttings in London. And also whatever the rate of payment may be, to be present and vote at all general meetings; to introduce visitors at the ordinary general meetings of the Society; to have access to the library and other public rooms of the Society, and there to consult the printed books, plates, and drawings belonging to the Society; to have personal admission, and to introduce personally, or by order, visitors to the garden of the Society; to receive gratis such publications of the Society as may appear during the time they continue to be Fellows; to purchase, at a reduced price, tickets for special Exhibitions, with such limitation and under such regulations as the council may from time to time direct. *Ladies.*—Every lady, Fellow of the Society, may appoint any gentleman, being a Fellow of the Society, to vote for her at the general meetings of the Society, upon the production of a proxy, which shall not be changed more than once in each year. If any lady, Fellow of the Society, is the wife of any person not a Fellow of the Society, he will not be entitled in her right to any of the rights or privileges of a Fellow, but she will, so long as she continues to conform to the regulations of the Society, continue to enjoy separately all her rights and privileges as a Fellow of the Society.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The Floricultural Cabinet.

FEBRUARY, 1857.

ILLUSTRATIONS.

1. FUCHSIA GLOBOSA, VAR. RANUNCULIFLORA PLENA.

WE present our readers with a coloured representation of the very interesting hybrid Fuchsia raised by M. Coene, of Ghent, and named appropriately *Ranunculiflora plena*—the corolla being remarkably double, or full of petals compactly placed together. The tube is short, and the sepals, when fully expanded, turn back, freely exposing the numerous bright purple-crimson petals. In habit it much resembles that of the old *globosa*, and is very free flowering. Those who are fond of this handsome tribe will do well to procure this variety, it being the first really double Fuchsia that has come under our notice. We believe M. Van Houtte has the stock.

2. PELARGONIUM LA BELLE ALLIANCE.

For many years there has been a steady progress in the Pelargonium, in perfection of form, size, and texture, as well as in colour. The attention which has been devoted to this plant by such successful growers as Messrs. Hoyle, Foster, Ambrose, Turner, and Fouquet, in our country, and MM. Odier and Miellez, in France, has been rewarded by the production of varieties possessing much excellence, not only in the form and outline of the class known as "show flowers," but also in the markings and colour of the attractive "fancy class." We believe, however, that much more remains to be accomplished, and we would impress upon florists the desirability of renewed attempts to reach the "standard of perfection," and more especially to aim at obtaining greater variety in colouring, in which much is yet to be achieved. We hope in the ensuing season to find improvement still farther carried out, and would urge upon Societies the duty of offering more inducements to good cultivation, and the origination of other varieties approaching still nearer the *beau idéal* of a first-rate Pelargonium. The variety now figured was raised by Mr. Fouquet, and possesses several excellent qualities: the form is fine, the centre pure white, upper petals having a rich maroon blotch, shading off to scarlet, and edged with clear pink; the lower ones salmon-rose, with an intense orange-crimson spot—a variety which should figure in every good collection.

ON PROPAGATING PLANTS BY CUTTINGS.

BY MR. HENRY DYER.

AS a general rule, those plants which are soft wooded, and elaborate a quantity of sap, strike root from cuttings with comparative readiness—of this class are Fuchsias, Dahlias, Pelargoniums, Petunias, etc. Plants of a hard-wooded nature are more difficult to strike, as Ericas and Epacrises. The general directions for propagating by means of cuttings are to insert them in sand, within the rim of a pot, and cover them with a bell-glass, until they have made some little root; and this may be taken as a precautionary method with such plants as are of the more difficult class. Cuttings are sometimes directed to be made of the old wood, and others of the young and tender new wood; in general, however, the safest plan is to take off the cutting at that point where the young wood is united to the old, so that a small portion of that of the previous year's growth may remain attached to it. The shoot should be cut off with a clean cut, for if ragged many will not grow; and sandy soil is beneficial as ensuring drainage, for cuttings rot, or "damp off," if stagnant water be permitted to accumulate round them. When inserted, the earth must be made firm round the lower end, for an empty space left below it will cause it to wither. Shoots of such plants as are soft wooded and strike readily may be cut up into several cuttings, all of which will grow; but of hard-wooded plants, the general rule is to take only one cutting from a shoot, which must be taken from the tip. Healthy shoots of moderate strength are to be preferred to those that are very strong or very weakly, and if only leaf-buds on them, are better than flower-buds. Bottom heat is afforded to some cuttings which are hard to strike, and the stimulus given by the heat induces them to throw out roots; this is absolutely essential with many plants. The heat must be carefully regulated however, so that it be not too hot, or the roots would be destroyed as soon as produced. Several ingenious plans for striking cuttings have been recommended by various gardening authorities. One, by Mr. Forsyth, is as follows. Take a wide-mouthed forty-eight pot, fill it up about one-third with crocks (broken pots), in the usual manner; then take a small wide-mouthed sixty, stopping up the hole with clay, and place it within the larger pot, filling up all round with sand, or other soil, and put in the cuttings in contact with the outer rim of the small pot; the latter is then filled with water, and the whole plunged in a hotbed or in the ground, as the nature of the cuttings requires, and may be covered with a bell-glass, which rests close within the rim of the larger pot. Another plan is to have a small pot turned bottom upwards inside a larger one, as a sixty within a thirty-two, filling the space to the top of the smaller pot with gravel or crocks, over this a layer of moss or peat soil, and filling up with sand. This is a very successful plan with such plants as are apt to damp off with too much moisture.

Plants requiring different methods of treatment in propagation by cuttings may be divided into the following classes: soft-wooded greenhouse plants, hard-wooded green house plants, Heath-like plants, stove plants, succulents, and plants requiring to be increased by cuttings of the roots. The first class, which comprises the Dahlias, Pelargoniums, Verbenas, Fuchsias, Maurandias, Tropæolums, etc., may have cuttings taken off in spring, or at any period through the summer; they may be struck in sand, or sandy soil, with or without a bell-glass over them, and either in bottom heat or not, as circumstances permit, or may render it desirable. Such are the easiest of all cuttings to strike; they are prepared by cutting them across cleanly, and immediately below a joint, trimming off the leaves as far as it is inserted in the sand; the lower end being inserted, the sand is pressed firmly round them, and they are placed in an appropriate situation, where they must be kept in the shade, and in a gentle and uniform condition as to moisture, until they have begun to make roots, when they may be potted off. During summer such cuttings may be put in out of doors in the free soil, at other times they require pots, in order to their being placed in a pit or house, where they may receive the necessary protection from the weather which they require.

Greenhouse plants that belong to the hard-wooded class, as Acacias, Cape and Australian shrubs, Camellias, and Myrtles, and other things with comparatively broad leaves, are rather more difficult to strike than the above; the soil best suited to them is such as contains a large proportion of sand, and the pots require plenty of drainage. After the spring growth is completed, and yet before the young wood has had time to fully ripen, cuttings must be made of the extremities of the shoots. If the plants have made their growth by March, and cuttings are then put in, they will be ready for potting off in summer; it is customary to cover them with either a hand or bell glass. In order to have cuttings ready at this time, the plan of forwarding the shoots, by taking the plants into the hothouse from the greenhouse, in January, is adopted, and they are hardened off again before the cuttings are put in, by removing them back to the greenhouse. If cuttings of this class are put in in autumn, they seldom root before spring, and have to be kept under glass through the winter.

Heath-like plants, as Ericas, Epacrises, etc., belong to a class the most difficult to strike by this means. Cuttings are taken off in spring, and are made of the extremities, and, to ensure success, should not be more than an inch in length; they must be cut clean off at a joint, and the leaves dressed off the lower end for about half an inch. They are struck in pure silver sand, with a sub-layer of peat, and well drained; they require bell-glasses, which must be frequently taken off and wiped, to prevent damping off; the cuttings must be placed near the glass in a pit, where they may be shaded. The best time for increasing Ericas is in December, and the shorter the shank of the cutting the less is the probability of their perishing by damp, and the quicker they root. Unless the cut is made very even, and care be taken to avoid lacerating the bark, moisture will enter and the cutting be destroyed. This, I believe, is the reason why so few succeed in striking Heaths well. The pots containing them may be placed in a pit, or on a shelf in the greenhouse, as near the glass as convenient, and where they may have a temperature of about sixty degrees. Attention must be given immediately to remove such as fail or rot, as one will infect the whole in the pot. The majority will have taken hold of the soil by February or March, when they may be transferred carefully into thumb-pots, in finely sifted peat and a good proportion of silver sand, the pots being about half filled with drainage materials, and the plants placed rather high in the pots. Their after management does not come within the limits of this communication, and I hasten to the consideration of the class of stove plants, cuttings of which generally require to be put in the same soil as the parent plant grows in, and plunged in a gentle bottom heat, under bell-glasses. A few plants of this description, however, require silver sand, without bottom heat. Some of the larger-growing species make very large cuttings, which must therefore never be allowed to droop or flag, in which case they receive an unfavourable check.

Cuttings of succulents, as Euphorbias, Crassulas, and Mesembryanthemums, and the Cactus tribe, should be laid by for a day or two after they are cut off, to dry the stump, and then planted in a mixture composed of sand, brick rubbish, and peat; the pots must be well drained, and placed on a shelf in a warm greenhouse. When watered, the supply should be small; indeed, many require no water until after they are rooted.

Propagation by cuttings of the root is necessary in the case of many plants, as Acacias and Roses; the roots chosen should not be less than a quarter of an inch in thickness, planted with their tops barely above the surface of the soil, and, where necessary, plunged in a gentle bottom heat; in a few weeks buds will be formed, and plants established in much less time than by any other plan. Hardy plants may be put in a light rich soil, and be kept moist, under a wall or in any other shaded situation which may offer.

For the convenience of amateurs and others who have not the convenience of a greenhouse or pit, some ingenious little contrivances have been effected, as in Walton's propagating case, where we have a box of convenient dimensions, roofed with glass, and glass ends, like a miniature pit, heated from a zinc box containing water over the flame of a small lamp or gas-light. These may be constructed for a few shillings, and heated for a few pence weekly, and are sufficient to hold three or four rows of forty-eight-sized pots, and three rows of sixty-sized, of six and eight in a row respectively. In these the amateur may successfully propagate, at small expense, many pretty plants which otherwise would be almost beyond his means.

THE ROSE GARDEN.

BY G. G.

TWO thousand years have well-nigh elapsed since the Greek poet Sappho immortalised the Rose, when she wrote "Jupiter wishing to give to the flowers a queen, his choice fell on the Rose;" and from that time to the present there is scarcely one of the great bards who has not in some way or other sung its sweet charms. A collection of poetic allusions to this royal flower would form an interesting volume, but at present I have chosen for my theme a more practical one, purposing to make a few remarks concerning the most approved method of forming a Rosarium, or, as it is more popularly termed, a Rose garden, and on the planting of Roses.

The situation of a Rose garden must be one open to the sun or freely exposed to the south, and removed from the shade of trees, where a free circulation of pure air may be had; and for this reason Roses never do well in the close neighbourhood of smoky towns or cities, where the atmosphere is so impregnated with particles of carbon, sulphur, and acid products, that the "lungs" of the plants are certain to be stopped up thereby. Although the situation requires to be open to the sun, yet it must be one screened from the wind; perhaps the best place for such a purpose would be a gentle hollow, surrounded north, east, and west by rising grounds, and next to this a tract sloping off towards the south; the first, however, is preferable, as being more secured from cold winds, and the plants are viewed to greater advantage from the high ground. Should the place be naturally moist, however, it will require draining, or nothing will be made of the Roses. Where such natural advantages as the foregoing are not available, we must be content with a level surface, and protection against wind may be afforded by surrounding the whole with a dwarf shrubbery, excluding from the south, east, and west such tall-growing shrubs or trees as are calculated to throw an injurious shade over the chosen area. The north side may have a wall, which, if not objectionable, made be made use of for training many tender kinds, that would not do well without this protection. The beds should be arranged in the geometrical style, with gravel walks between, and stone, slate, or box edgings. Grass walks are generally objectionable, and, unless the Rosarium is extensive, should never be introduced; the beds ought not to be too broad, seven feet being a convenient width for these, as it permits each plant being easily examined, without the necessity of treading over the soil, which not only consolidates the soil, but always looks untidy. The Roses being generally budded on stems of various heights, have more or less an artificial or studied appearance, and being, moreover, florists' flowers, the geometrical or artificial style harmonises better than the natural, and, where a view over the whole from a higher situation may be had, looks more pleasing than any other, especially where a garden is devoted to the growth of a genus. Of all outlines I think the circular is to be preferred; and if your talented friend Mr. Rutger were to oblige us with a few of his original designs for this purpose, I believe they would be very acceptable to florists generally. When the Rosarium is to be laid out, and the site is determined on, let it be well drained; but this should be efficiently done, so that the drainage be not soon choked up, and the whole have to be gone over again, sooner or later, as is too often the case where slovenly drainage is laid down. As to the soil, application of manure, etc., I need say little, it being, or should be, so generally known by gardeners that good loam, well manured, is most suitable for the generality. Before planting, when this can be done, it is an advantage to form the holes and throw up the mould, to pulverize by the action of frost, during the mid-winter months; these holes should be three feet in diameter, and two feet deep, where space permits, but if limited, two feet across will do very well. It is too frequently the practice to form a hole scarcely sufficient to receive the roots, which are thrust into them, and often in poor wet soil, or one of too sandy a nature; who would expect a good bloom under such circumstances? The plants should be classified, and each group may have one or more beds devoted to itself; for instance, Hybrid Perpetuals may occupy several beds, and Mosses may be in the smaller beds, at intervals between; and so of the rest. The taller plants should occupy the centre of the beds, gradually diminishing in height to the outside; the most convenient height for the taller plants is about three and a half feet in the stem. Tall standards of five or six feet in height may be placed in small circular beds, one in each, on the grass verges outside the whole, fastened to neat iron stakes, and will add much to the general effect. All the tall standards should be attended to in respect to staking, to prevent their heads being twisted by wind, and to preserve their form and perpendicular. If the garden be of limited dimensions, the beds ought to be proportionally smaller, and the tallest standards not more than three feet high in the stem, nothing looking worse than very tall plants in a small garden, unless they be placed in the centre of a circular plan, or towards the angles of a square or rectangular design. As a means for producing good effect, it is desirable to have pillars with trellis-work, for climbers and pillar

Roses; such things, when nicely designed and neatly put up, make a charming appearance covered by the plants in full bloom: the height of the pillars may be from twelve to fifteen feet. Or, if preferred, they can be festooned, by having a strong wire gracefully hung from pillar to pillar, to which the Roses may be trained. The choice of sorts should be select at all times, but this is more than ever desirable where the number of plants is limited; and I would strongly urge the amateur to rely more upon a sight of the Roses in bloom than a catalogue for the selection of his kinds. Any one about to form a Rosarium cannot do better than pay a visit to the extensive collection of Messrs. Lane, of Great Berkhampstead, or to Mr. Wilkinson, of Ealing, during the blooming season, and he will not only be enabled to make a good choice, and ensure distinctness, together with other good qualities, but will be highly gratified by the display of bloom which he will be sure to meet with.

REMINISCENCES OF GARDENS.

BY RISCEMARA.

ICICLES are hanging outside my windows, and scarcely a flower, except the *Jasminum nudiflorum* and Christmas Rose, is to be seen in the garden; so I am disposed to recall some of the horticultural enjoyments I have had in the preceding year, and leave the Editor of the *Floricultural Cabinet* to decide if their record is worthy of his notice. The first object of especial interest I would allude to was the great pleasure I experienced, in that month which is said to come in like a lion and go out like a lamb (but last year this saying was reversed), to perceive on our *Pawlonia imperialis* at least twenty-five sprays showing flower-buds near their ends; some were as large as filberts, and appeared likely to expand, but the weather becoming much colder as the season advanced, the small ones shrank up, the larger became crisp, and no bloom ensued: our gardener said he had observed a similar promise in the preceding spring. As a greenhouse plant, I would highly recommend *Calceolaria Violacea;* its numerous delicately spotted flowers and its elegant little leaves rendered it an object of admiration, and it is rarely seen in collections. *Tulipa cornuta* bore a curious flower, its bright-coloured narrow petals, about five inches long, and tapering to a point, rendered it a distinct variety of that showy tribe. In the garden, at this early period, the abundant blossoms of the *Forsythia viridissima*, before the leaves appeared, rendered the shrub a great acquisition. The long corridor at the Sydenham Palace was very interesting, from one side of it being lined with flowering Rhododendrons—some of a carmine tinge were very attractive; and the numerous trees and shrubs in pots, in the large house, with such a wonderful variety of foliage, were quite a study to inspect. At Kew, the remarkable *Hakea conchifolia* excited attention; it is (like the *Erica nivea*, whose flowers resemble small tufts of snow) truly named, and dissimilar to other plants. The new brilliant *Corræa*, and *Acacia celastrifolia* and *rotundifolia* were beautiful. The spacious Aloe-house contained many objects tempting us to linger; for the first time, I saw there in blossom *Euphorbium tetragonum*, long known to me as *Cereus tetragonus;* its many small bright yellow flowers clustered near each other gave it a cheerful effect. After seeing the arrangement of the grounds at Sydenham and Kew, it was refreshing to wander in the mazy walks of the Zoological Gardens, and to inspect the living sea-weeds, etc. I hope that those who appreciate the wonderful works of our Divine Creator will not neglect to vist this attractive place. In the season of Rhododendron flowers I was gratified by the large collection in the romantic grounds of Hoe Mill; some were tree-like and beautifully marked—one, called *Tigrinum*, was deeply spotted—and near them grew the rich-looking *Thuja aurea.*

In the early summer, in a gentleman's conservatory at Wisbeach, I was much pleased with a fine assortment of the French Pelargoniums, their deep-coloured marks rendering them distinct varieties from those previously grown. A species of *Eucomis* had flower-stems about five feet high, far down which white blossoms descended—the pot containing the root was comparatively small; one plant had two long flowering stalks, far surpassing in beauty and size the well-known *Eucomis punctata.* The grand *Imantophyllum miniatum* had been there in vigorous bloom, in the early season. These bulbs, with many others, were presented by the late Dr. Stanger, who died at Natal, some of whose near relatives reside in the town; he was one of the few survivors of the Niger expedition, and was distinguished for his scientific researches. It is gratifying to learn that there is a plant, no doubt from Natal, named after him, viz., *Stangeria paradoxa.*

Far away from our eastern counties, in the grounds of a gentleman, of whose elegant clock-tower a distant view is obtained near the Stanningley station, I visited a delightful fernery. You open a wooden door, observing no glass, and, little suspecting what to see, are startled to find yourself in a sort of grotto, from the sides of which rare Ferns, planted in picturesque pieces of wood, are drooping. The golden and silver Ferns truly deserved their English appellations, their Latin names are *Gymnogramma, Chrysophylla*, and *Tartarea;* the applicability of the latter word is not apparent. *Polypodium umbrosum* and *azureum*, with the *Lycopodium Wildenovii* and *Polypodium Cambricum*, were conspicuous, also *Asplenium, Odontitis*, and *Viviparum;* the latter resembled a dwarf *Equisetum*, with fern-like fronds scattered over it. *Adiantum formosum* had pale green drooping leaves; *Bleehnum Brasiliense* was much indented. A small specimen with delicate fronds was familiarly called the Artillery Plant, as, when water was applied to certain parts of it, an effect resembling steam was produced. One Fern had a stem more than a yard long; it gracefully waved above a reservoir, in which gold fish were swimming. In the conservatory *Begonia maculata*, having tufts of delicate silky fibres under its leaves, was quite a curiosity, as was the elegant *Centradenia rosea*, with a shaded purple tinge on its leaves, and little pink flowers. A species of *Habrothamnus* claimed attention, from its pink blossoms being abundantly clustered at short intervals round its drooping branches. The Pampas Grass had flowered there the preceding autumn; its head had been preserved, and reminded me of the tail of a bird of paradise. At the Rodney Nursery, the beautiful Fuchsia with a white corolla was new to me, and in the garden were some rather tall, showy, white Lilies, resembling the Martagon in shape.

I am now in imagination rambling about the picturesque ruins of St. Osyth's Priory, in Essex, inspecting, amongst many fine trees, the ancient Lombardy Poplar brought from Italy some years since, by Lord Rochford, and from which it is said most of those grown in various parts of England originated. It is considered to be above seventy feet high. In the lofty conservatory, placed in a flower garden surrounded by high antique walls, was a Fuchsia about eleven feet high, and a fine specimen of a Hardenbergia.

Visiting, late in the year, the pleasant village of Sonning, in Berkshire (interesting for the many lofty Elms and other trees in its verdant park, its numerous wild flowers, and picturesque walks by the side of the Thames), in the garden of the old Manor House I was surprised by the beauty of the double white *Petunia imperialis*—it reminded me of a Picotee; from its perfectly shaped blossoms and their rich whiteness, it is an acquisition to our gardens, and is probably the precursor of other desirable double varieties of that favourite plant.

A DESCRIPTIVE LIST OF THIRTY OF THE BEST NEW DAHLIAS.

BY THE FOREMAN OF A LONDON NURSERY.

THE following brief remarks on the merits of a selection of thirty of the best among all the new Dahlias which came under my notice during my attendance at the exhibitions of the last season may be useful, and can be relied on, having been made from the flowers when in the best condition; although more than double the number were shown, it has been my object to notice only such as appeared deserving, and possessed just claims to improvement. I had drawn up a table showing the number of prizes which were obtained by each flower, but, upon reflection, thinking such a vague guide not entirely to be trusted to, some flowers being gainers of prizes at exhibitions whence I was unable to obtain exact returns, I have omitted it, and give you the results of my own judgment, which is an unbiassed one, trusting it may be acceptable as well as useful to your readers.

SELFS.

BRIGHTON BEAUTY (Legge).—Pale blush, with a bold lacing of purple-crimson; petals full and form good, size extra; a first-rate show flower.

CARDINAL (Skinner).—Bright scarlet-red; good form and outline; petals very regular, and well up in the centre.

CHERUB (Holmes).—Very striking bright orange; petals well formed and regular, of good substance; outline tolerable; this will probably improve next season.

CLEOPATRA (Salter).—Deep yellow, or orange, striped with crimson, very showy, but outline scarcely up to the standard; flower rather under full size.

DELTA (Turner).—Yellow; petals and outline good, and firm, but they do not fill well in the centre, which is the only drawback in this flower.

DUKE OF DEVONSHIRE (Dodd).—Rosy lilac, fading off to pure white at the lower portion of the petals, which are well formed, firm, of great depth; outline excellent, size large; one of the best flowers in my list.

HARBINGER (Fellowes).—Deep scarlet; a showy flower, but of medium size, and petals rather thin.

MIDNIGHT (Fellowes).—A shaded flower, almost black; good depth of petals, united with much substance; fine outline; a promising flower.

MRS. CRITCHETT (Rawlings).—Pale orange-buff, with an amber tinge; of moderate size, and well cupped.

MRS. EDWARDS (Summers).—Pale rosy lilac; petals good, but not sufficiently well up in the centre; good outline.

PERSEVERANCE (Slipper).—Orange-buff; a shaded flower of extra size, though rather coarse.

ROYAL SCARLET (Keynes).—Scarlet-carmine; great depth of petals, which are of good substance and form; an excellent show flower.

SYMMETRY (Barnes).—Deep crimson-purple; a tolerably good-shaped flower, but not over large; petals nicely cupped.

TOUCHSTONE (Fellowes).—A good purple flower; great depth of petals, but centre not sufficiently up.

FANCIES.

CARNATION (Keynes).—White, with purple stripe, the white very clear; petals very nicely cupped and regular, well up in the centre, and of good substance; outline excellent; a first-rate fancy flower.

CHARLES PERRY (Keynes).—Pale ruby, striped with deep purple-crimson; petals regular, rather shallow however, but well up in the centre, and good outline; a large flower.

Conqueror (Keynes).—Fancy; pink, spotted and striped with crimson-purple; good petal and moderate outline; a medium-sized flower.

Duchess of Beaufort (Bush).—Fancy; light blush, with a dark purple tip; petals well formed, of good substance, and outline regular, but rather small.

Fancy King (Legge).—Light amber-red, tipped with white; a neat flower, but a tendency to quill.

Fenella (Holmes).—French white, with purple tips, moderate size, and good petal; very promising.

Frances (Grant).—Scarlet, with a distinct clear white tip; size and form moderate.

Lady Paxton (Dodd).—Red, with nankeen tips; petals nicely cupped, well arranged and up; outline very good, and size extra; a very desirable flower.

Lady Popham (Sainsbury).—Light blush, with pale purple tips; petals of good substance, very well arranged, and up in the centre; outline and depth excellent, but somewhat under medium size, which is its only drawback.

Lady Scott Douglas (Dodd).—Light carmine-purple, with crimson-black stripes; petals rather shallow.

Marion (Fellowes).—French white, tipped with lavender-purple; petals large, and of good substance; outline extra, with good depth.

Mrs. Legge (Legge).—Dull yellow, with reddish purple tip; petals well formed, of good depth, and well up in the centre; outline and size moderate.

Roland (Bush).—A neat flower; white, with crimson-purple tips; good petal and outline; size moderate.

Saturn (Turner).—Clear yellow, with bronzy red tips; petals of good form and substance; medium size.

Tam o'Shanter (Dodd).—Pale lavender-purple, with ruby-crimson or purplish stripes; petals good, except in the centre, where there is some want of arrangement.

Tattycoram (Slipper).—Almost black, with tips like Empereur de Maroc; petals well formed, and up in the centre; outline good.

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OUR HARDY HEATHS.

BY MR. PETER MACKENZIE, WEST PLEAN, STIRLING.

I have often thought that the numerous varieties of our hardy Heaths should be more generally cultivated than they are; those who desire to have plants long in flower should grow them, for the flowering may be kept up the greater part of the year. The most of them are plants of neat habit, and most varieties may be grown in a small space of ground. I should consider many of them well adapted for ribbon gardening; the low-growing kinds make excellent edgings for flower-beds and borders, and will grow in a variety of soils. Although, as Knight remarks, "An opinion generally, though I think somewhat erroneously, prevails that many plants, particularly the different species and varieties of Heath, require a very poor soil in pots; but these might, I conceive, with propriety be said to require a peculiar soil, for I have never seen the common species of this genus spring with so much luxuriance as from a deep bed of vegetable mould, which had been recently very thickly covered with the ashes of a preceding crop of Heaths and other plants that had been burned upon it.

The varieties of our hardy Heaths are not overlooked by the poet:—

"On Caledonian hills sublime,
Spreads its dark mantle, where the bees delight
To seek their purest honey; flourishes
Sometimes with bell-like amethysts, and then
Paler and shaded like a maiden's cheek
With gradual blushes; others, while as white
As rime that hangs upon the frozen spray.
Of this old Scotia's hardy mountaineers
Their rustic couches form, and those enjoy
Sleep which, beneath his velvet canopy,
Luxurious idleness implores in vain."

Another lady poet and botanist writes—

"Ne'er may again the heathery bed
Pillow the hardy warrior's head,
When resting from the strife—
The horrid strife that dyes the ground
With human gore; and from around
Impels the agonizing sound
Of fast-expiring life."

To those who burn acres of Heath every year, the cultivation of it in gardens and glass houses appears a strange thing. They think the individuals "daft," or they "dinna ken what to do wi' their siller," who engage in such pursuits; but even among our native Heaths there are several fine varieties that are well worth cultivating. In our common Heath, or Ling, *Calluna vulgaris*, we have the white-flowered variety, the double flowered, decumbent, tomentose, variegated, scarlet, and spiked.

The varieties of *Erica cinerea*, or "Carlin Heather," are the white flowered, dark purple, red, and flesh coloured. In the *Erica tetralix*, or Cross-leaved Heath, we have the *alba* and *carnea*. Many more names of hardy Heaths might be added, and those of your readers who desire more will find them in the volume of the *Floricultural Cabinet* for 1843. Some years ago an article of mine appeared in the *Cabinet*, "On Blanching Flowers in the Flower Garden." An extract from it may not be out of place at present. "The *Erica herbacea* is a common species in most flower-gardens, and also an early flowerer. Its blossoms are red in general, yet they may be made white without injuring the leaves of the plant or the flowers. A portion of the plant may be covered with light earth, before the flowers have any red colour, and the covered part may remain until the flowers of the uncovered portion are fully out. When the earth is taken off, it will be found that the corollas have increased in size, equal to those that were exposed, but instead of being red like them, they will be found to be a pure white. A sprinkling from a watering-pot with a rose on it will remove any of the soil that may remain about the flowers and foliage. Different parts of the plant may be covered, according to the fancy of the operator. Half of the flowers may be red, and the other half white, or there may be a circle of white flowers surrounding the red on the same plant. They will continue white for some time, and it may be amusing to some persons to observe the gradual progress of the colour growing upon the flowers. A sudden change may be made in the appearance of the flower-garden by this simple plan."

A writer on the cultivation of hardy Heaths says, "that the best mode of exhibiting their beauty to advantage is perhaps that of grouping them." The smaller-growing kinds are well adapted for edgings to peat beds; they are by no means particular in regard to choice of soil, growing well in light sandy loam mixed with a very little peat, and in all grades of soil of that class. The situation for them may be either wet or dry. The only care required to keep them in health and vigour is not to allow them to get more than four years of age without replacing them with young plants, with the exception of three species, which will be noticed hereafter. When they get beyond that age they are liable to have their stems split from the bottom to the top during winter, which, if it does not entirely kill the plants, very much disfigures them.

The keeping up a succession of young plants is readily effected; for all the sorts requiring to be renewed root readily by layers, which, when taken off and transplanted, either in September or April, rarely fail. Larger plants may also be transplanted with safety at these two seasons. The old European Heath, *E. Mediterranea*, which makes long shoots every season, is liable to have part of its tender branches killed back in winter, except in very sheltered situations, while the variety found in Ireland makes short firm shoots, and is never injured by the weather.

The manuring of Heaths is a thing not very common among gardeners, and yet it may be done with advantage to the plants. Mr. Knight says, "Experience having satisfied me that plants of all kinds, even Heaths, very often perish through shortness of food, and that they very rarely suffer from excess of it when their roots are confined to the narrow limits of a pot." Again he says, "A plant of a Heath (*Erica australis*, I believe) was placed under my care, with a request that I should treat it in any way I wished. It was then about eight inches high, and growing in a small quantity of peat-earth and sand, and in that it continued to grow, with very little increase of size, till the following spring. From that period it was regularly supplied with water, which, though clear, was considerably tinged with an infusion of pigeon's dung. I was apprehensive this kind of food would prove fatal to it; but, far from this being the result, the plant grew with excessive health and vigour, emitting very numerous branches, eight of which exceeded eighteen inches each in length. It was then taken away by the owner, and I have not since seen or heard of it, but it left me in a state of luxuriant health. How far other species of this genus will bear being thus abundantly fed with liquid manure is an interesting question to the gardener."

A knowledge of our native Heaths may lead some to a better acquaintance of the *Ericacea*, or Heath family, which are scattered over different portions of our globe, for there are many beautiful plants in the order; and a writer justly remarks, "Among all the productions of the vegetable kingdom, there is not a single individual but which has its uses; even those very tribes which daily remind us of man's fall, and the curse pronounced upon the earth for his sake, have in them properties of peculiar usefulness, and prove beneficial to the wants of man. God hath made nothing in vain: some are for use, others for ornament; and not a few, perhaps all, are possessed of medicinal properties—properties without which life itself would be a burden, and if deprived of which, it would be utterly impossible for man to exist. Those who despise God, and make flesh their aim, are compared to the Heath in the desert, and shall not see when good cometh; and it is poor comfort, when times mend, they shall have no share in it, but shall inhabit the parched places in the wilderness. It will be better to be

"'The man
Whom nature's works can charm, with God Himself
Hold converse, grow familiar day by day
With his conceptions, act upon his plan,
And form to his the relish of their souls.'"

NOTES ON NEW AND SELECT PLANTS.

LILIUM CANADENSE, *var.* FLAVUM. Nat. Ord. *Liliaceæ.*—An old but little-known variety, which was originally introduced from Canada into France, from whence plants were received in this country as far back as 1629. It grows wild in Carolina, Virginia, the Alleghany Mountains, and other districts of North America. A graceful plant, bearing flowers about one-third the size of the common white Lily, bright golden yellow, with numerous dark red spots; the number of blossoms varies from one to a dozen, according to the strength of the plant. Not so well known as its merits deserve. (*Flore des Serres*, 1174.)

18. COSMELIA RUBRA. Nat. Ord. *Epacrideæ.* Syn. *Epacris*

rubra.—A small evergreen shrub, the numerous branches of which are terminated by a single pendent flower, which are tubular, about an inch long, somewhat resembling that of an Epacris, of a bright carmine-red, which contrasts admirably with the dark green of the foliage. The leaves are imbricated, surrounding and overlapping each other along the stems. It was discovered about the commencement of the present century by the illustrious Robert Brown, inhabiting the marshes of the south-west coast of Australia, near to King George's Sound. It bloomed with Messrs. Loddige, in a cool house, for the first time in this country. (*Flore des Serres,* 1175.)

19. CLEMATIS LANUGINOSA, *var.* PALLIDA. Nat. Ord. *Ranunculaceæ.*—M. Van Houtte has reproduced a figure of this magnificent Clematis, which is decidedly the finest of the whole genus, and which he states has borne the severe winters of Paris without any protection. It succeeds well in the open air in this country also. The flowers are of remarkable size, measuring in numerous instances ten inches across; they are of a delicate lavender-blue, and constitute it one of the handsomest hardy climbing plants we have. An account of its history and introduction has already been given. (*Flore des Serres,* 1176.)

20. STREPTOCARPUS POLYANTHUS. Nat. Ord. *Cyrtandraceæ.*—From Port Natal, and raised from seeds in Kew Gardens. The flowers resemble those of a small Achimenes, being about an inch and a quarter across, pale slaty blue, with a blush tube and yellow throat, borne in clusters of five or six together. The foliage is large, and of a fine green. It flourishes in a moist stove, but requires a dry atmosphere during winter. (*Flore des Serres,* 1168.)

21. TRADESCANTIA DISCOLOR, *var.* VITTATA. Nat. Ord. *Commelineæ.* Syn. *T. lineata.*—Plants with handsome foliage are at present in great favour with the gardening public, and deservedly so. *Tradescantia discolor,* var. *vittata,* is a very remarkable member of this class, and inferior to few in the beautiful markings of its leaves, which are striped alternately along the whole length of their upper surface with bands of golden yellow and clear green; the under surface is a rich crimson-purple, the mixture of which produces a charming effect. The leaves in size and shape resemble those of the common garden Iris. The present variety made its first appearance in Holland, and we are given to understand M. Van Houtte secured the possession of the whole stock from M. W. Steen, who had it through a friend at Batavia. The blossoms are small and white, supported in crimson bracts. The plant is very easy of propagation, but requires a warm stove. (*Flore des Serres,* 1169.)

22. CYCLOBOTHRA ALBA. Nat. Ord. *Liliaceæ.*—A neat bulb, one among many which are less generally grown than their beauty would warrant. The flowers are pendent, pure white, and of a globular form, produced by the curving in of the petals. The inner surface of the latter is covered with delicate white down. The sepals are green, lightly ribbed with brown, and the whole flower about two

inches across. This species is from California, where it was detected by the late unfortunate botanical traveller, Mr. David Douglas. A cold pit suits this bulb better than any other situation. (*Flore des Serres*, 1171.)

23. Hibiscus marmoratus. Nat. Ord. *Malvaceæ*. Syn. *Abutilon marmoratum.*—The flowers of this Hibiscus resemble in a considerable degree certain varieties of *Azalea Indica;* they are covered with an abundance of rose-coloured spots on a white or pale blush ground, and being thought to present a somewhat marbled appearance, gave rise to the specific name *marmoratus*. It was imported from Mexico in 1854, by M. Auguste Tonel, and bloomed for the first time in Europe with M. Amb. Verschaffelt, of Ghent, in May, 1855. It is a rather small bushy plant, bearing large leaves; the flowers are solitary, borne from the axils of the leaves, and are about three inches across. (*Flore des Serres*, 1159.)

24. Stenanthera pinifolia. Nat. Ord. *Epacrideæ*.—Introduced from New Holland in 1811. A small bushy shrub, bearing flowers at the extremities of the branches, and densely covered with small, narrow, and pointed foliage, about an inch in length, resembling in this respect some of the Pinus tribe. The flowers are borne in terminal clusters of three or four in each, tubular, rather under an inch in length, of a rosy crimson, with a white band and green tip. It flourishes well in a cool greenhouse. (*Flore des Serres*, 1162.)

25. Iochroma Warscewiczii.—Sent to the Botanic Garden at Zurich, by M. Von Warscewicz, from Peru. It is a pretty plant in every sense of the word, and is well deserving a place in the greenhouse. It is a free bloomer, putting forth its long pendent flowers when the plants are not more than six inches high, in pairs, from the axils of the leaves; they are tubular, somewhat resembling in appearance those of a miniature Datura, three inches in length, and an inch and a half across the mouth, of a lavender-purple, reticulated with veins of a deeper tint in the mouth and throat. The stamens are white and prominent. The foot-stalks are equal in length to the flowers. Foliage is a fine lively green, cordate, six inches in length, and four across. It is readily propagated by cuttings. (*Flore des Serres*, 1163.)

26. Dianthus pulcherrimus. Nat. Ord. *Silenaceæ*. Syn. *D. Japonicus.*—Although this pretty little plant has been introduced to this country for some years, it is seldom seen in cultivation. It is supposed to be a native of China. The flowers are borne in a terminal cluster of thirty or forty, and resemble a "Sweet William" in miniature. Their diameter does not exceed the third of an inch; the petals are deep blood-red, while the centre is green, surrounded with a distinct, irregular, white eye. It is of dwarf habit, not growing more than from three to four inches high, and has a very neat appearance. The leaves resemble those of the Daisy, which gives rise to the name by which it is known by French gardeners, as "l'Œillet à feuilles de Pâquerette." It succeeds well in peaty soil,

and has a charming effect when grown in small pots. (*Flore des Serres*, 1172.)

27. PASSIFLORA TINIFOLIA. Nat. Ord. *Passifloreæ.*—A rare and little-known species, belonging to the edible section of Passifloras. It is said to be an ornamental plant, bearing fruit the size of an apricot, globose, yellow, and probably as well flavoured as the other species of this group. The flowers are somewhat showy when expanded, about two inches and a half across; the sepals are rather narrow, greenish, white without, and deep pink within; the corona consists of a double ray, the filaments of which are white, with three banded rows of purple, and three of crimson towards the base. The leaves are about four inches long, alternate. It is a climber of easy culture in a moist stove; a native of Demerara. (*Bot. Mag.*, 4958.)

28. ASTIBILE RUBRA. Nat. Ord. *Saxifrageæ.*—A neat-blooming, hardy, herbaceous plant, discovered on the Khasia mountains, in Eastern Bengal, by Dr. Griffith, and afterwards by Drs. Hooker and Thomson, by whom seeds were sent to the Royal Gardens at Kew. It is perfectly hardy, and blooms in the late summer and autumn months. It grows to the height of about five feet, and is similar in habit and appearance to the Spiræas. The flowers are produced in a panicled spike of near a foot in length; the individual flowers are small but numerous, of a bright pink. (*Bot. Mag.*, 4959.)

29. LOBELIA SPLENDENS, *var.* IGNEA. Nat. Ord. *Lobeliaceæ.*—An old but showy variety, introduced to England upwards of forty years ago, from Paris. It was discovered in Mexico by those illustrious travellers Messrs. Humboldt and Bonpland, who sent seeds of it to the Berlin Botanic Garden. It appears to have been almost lost to our gardens for many years, and although treated as a greenhouse plant, it will be found to be perfectly hardy. It belongs to the erect-growing herbaceous class, and attains two to three feet high, producing its flowers very freely, which are large, and of a rich scarlet. (*Bot. Mag.*, 4960.)

30. SEAFORTHIA ELEGANS. Nat. Ord. *Palmæ.*—A Palm inhabiting the northern and eastern coast of Australia. Plants have been raised at the Royal Gardens of Kew, from seeds transmitted by Allan Cunningham, and one of these having attained a height of twenty-eight feet from the ground, produced its racemes of small flowers of a dull pale lilac, from the side of the dark green graceful trunk, in the autumn of 1856. (*Bot. Mag.*, 4961.)

31. ADHATODA CYDONIÆFOLIA. Nat. Ord. *Acanthaceæ.*—A new stove shrub from Brazil, introduced by Messrs. Veitch and Son. The flowers are large and showy, about the size and somewhat of the form of *Salvia patens;* they are produced closely, surrounding the stem from the axils of the leaves. The upper lip is white, tipped with purple; the lower, large and pendent, of a deep violet-purple, with a white streak down the centre, under side cream colour. The foliage is handsome, and, as the name would indicate, somewhat like that of the Quince. (*Bot. Mag.*, 4962.)

32. **Farfugium grande.** Under this name is placed, provisionally at least, the new plant shown by Mr. Glendinning at a late meeting of the Horticultural Society, and supposed to be a species of *Tussilago*. Having bloomed at the end of December, its flowers appear to indicate it as the type of a new genus proposed under the above name by Dr. Lindley. The appearance of the foliage is much like that of a Coltsfoot (*Tussilago*), but this is the chief attraction of the plant, the flowers being rather insignificant, yellow, with a dull purple centre. The leaves are large, measuring sometimes more than two feet in circumference, and borne on stalks twelve to eighteen inches long; their colour is a peculiarly bright emerald-green, blotched with patches of clear yellow. It is supposed to be evergreen and perfectly hardy, and we believe will prove a vast acquisition to British gardens, the showy foliage entitling it to a place in every parterre, where it will need only be seen to be duly appreciated.

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NEW AND SELECT GARDEN HYBRIDS.

[Under this head we purpose to describe all such seedling flowers or hybrid varieties which we consider worthy of cultivation that come under our notice, and which will serve not only as a guide to the amateur in the selection of his plants, but as a record of the triumphs of horticultural skill in the department of hybridization.]

PANSY IMPERATRICE EUGENIE (Miellez).—A new French variety of the fancy class. The upper petals are mottled with rosy plum colour, surrounded by a narrow creamy white border; the lower petals are cream colour, with a large blotch of violet shaded off to rose. The flowers are of large size and tolerable shape. (*Flore des Serres*, 1161.)

2. **Pansy Leonidas** (Charpentier).—Another continental variety of the fancy class, sent out by M. Miellez, of Esquermes, near Lille. The upper petals are of a rich violet-plum colour, the lower sulphur-white, with a broad edge and large blotch of deep violet; yellow eye. An immense-sized flower, but not of first-rate form. (*Flore des Serres*, 1161.)

3. **Fuchsia rosalba** (Coene).—A hybrid raised by M. Coene, of Ghent. It is a distinct variety, the tube and corolla being of a delicate peach colour, and the sepals tipped with pale carmine. Notwithstanding our English taste, which leads us to prefer a dark corolla, with a light tube and sepals, this will be found to be an attractive and free-flowering plant. (*Flore des Serres*, 1156.)

4. **Tropæolum azureum**, *var.* **grandiflorum.**—A variety in the possession of M. Verschaffelt, having flowers of superior size to those of the old *T. azureum*, of a lighter blue, and with a large white centre. (*Flore des Serres*, 1160.)

5. **Azalea indica**, *var.* **Beaute d'Europe.** Nat. Ord. *Ericeæ*.—A very showy hybrid, lately sent out by M. Miellez, of Esquermes.

The flowers are of good size and tolerable form, the ground-colour white, ornamented with numerous regular salmon-red stripes. It is a decided acquisition to this beautiful tribe. (*Flore des Serres*, 1157.)

6. **Azalea indica, *var.* albo-cincta** (Coene).—A hybrid, raised by M. Coene, nurseryman, of Ghent. The flowers are large, bright pink, surrounded by a waved edge of pure satin-white. M. Van Houtte has purchased the stock, which he will shortly send out. (*Flore des Serres*, 1180.)

7. **Tydæa Ortgiesii** (Van Houtte).—A plant closely allied to the Achimenes. It was raised in the establishment of M. Van Houtte, who named it after his friend M. Ordgies, of the Botanic Garden of Zurich. A robust and tall-growing variety, flowering freely. The blossoms resemble in form those of *Achimenes picta*, but are, however, of superior size; they are of a rich crimson, numerously spotted with purple; the throat is pale yellow, and the stems red, closely covered with hairs. It requires the same treatment as the Achimenes. (*Flore des Serres*, 1181.)

8. **Pelargonium Tattycoram** (Slipper), fancy.—A handsome variety, the upper petals deep maroon, with a narrow white edge, the lower white ground, with crimson-purple blotches; a nice round flower.

9. **Pelargonium Emily Whitcher** (Slipper), fancy.—A delicate flower of good form; upper petals clear carmine-rose, narrowly edged with white, lower petals white, with a banded blotch of the same tint as the upper; the colours are very clear and very pleasing; a fine large flower.

10. **Pelargonium Gertrude Richardson** (Slipper), fancy.—Upper petals crimson-maroon, with an even edge of white, lower petals having a large blotch of the same intense colour, which covers nearly two-thirds of their surface; centre clear white; good form, and a showy flower. The above three are new varieties sent out by Mr. Slipper.

FLORICULTURAL OPERATIONS FOR FEBRUARY.

IN THE FLOWER GARDEN.

General Operations.—Most of the operations directed last month may still be carried out; all alterations should be done as soon as possible. *Beds and Flower-borders*, dig and dress, being careful not to disturb roots, and add some well-decomposed manure, leaf-mould, etc. *Grafting*, should be commenced when the weather is open. *Lawns, Verges, etc.*, roll after rain as the season is fast advancing for mowing; trim verges, and lay down turf where necessary. *Layers of Shrubs, etc.*, transplant such as are rooted. *Plans of Flower Gardens* should now be made, and mark each bed with the kind of flowers desired, after which see to preparing a stock of plants for them. *Polyanthuses*, earth up with rich compost. *Protect* all half-hardy plants out of doors. *Seeds*, clean and sort for use next month; sow seeds of shrubs and forest trees, also of herbaceous perennials. *Soils and manures*, collect and turn over heaps. *Suckers*, propagate by suckers, Roses, Lilacs, Syringas, and other choice shrubs. *Walks* should be made, and kept in repair; roll, sweep, and weed.

CULTURAL DEPARTMENT.—*Anemones* can be planted early in the month, and will bloom in June; level the beds with a coarse rake to within about an inch of the walk; the roots should be dibbled in one inch and a half in depth, and five inches apart; seedlings a trifle wider, as they grow more vigorously. The situation should be open, level, and exposed to the sun. *Annuals*, sow hardy in borders. *Biennials*, sow. *Bulbs*, continue to protect. *Carnations*, plant, and shelter from cold winds. *Herbaceous plants* may be divided, and planted where required; reduce too large patches. *Hollyhocks*, plant out. *Hyacinths*, those which have done blooming, take away and place in soil, to dry off. *Pansies*, still continue to protect the beds from strong winds, and top-dress with half-rotten manure. *Pinks*, also protect and top, and see plants remain secure. *Pæonies*, protect the early buds of tree Pæonies from frost. *Ranunculuses*, follow the directions as for Anemones. *Roses*, plant early, and prune all the hardy class, the more tender sorts next month. Manure round the roots with cow-dung. If new varieties by seed are desired, this is the best time to sow. The young plants will be up about July, and may be planted the ensuing spring. *Shrubs*, evergreens may still be planted in mild weather. Cut around the roots of such as it is desirable to remove in July or August. Newly planted should have liquid manure to start them, and be supported with stakes. *Prune*, shift, and dress the soil of such as are in pots or boxes. *Tuberoses*, plant in a warm sheltered situation. *Tulips*, if severe frost occurs after wet, protect them; if beds are well drained, they receive no harm. Stir surface-soil in mild weather.

IN THE GREENHOUSE, COLD-PIT, AND FRAME.

GENERAL OPERATIONS.—The instructions given under this head last month should still be followed; water should be given with care, and excess avoided, to prevent damp; air should be given whenever weather permits. *Cuttings* should be provided by placing the plants in heat to grow.

CULTURAL DEPARTMENT IN THE COLD-PIT AND FRAME.—*Alpines*, expose them as much as possible to the free action of the air, to prevent those starting into growth being drawn up weakly. *Annuals, tender*, sow and plunge in a hotbed, water slightly, and cover with mats at night. *Antirrhinums*, cuttings put in during autumn may be potted off singly, if required for early bloom. *Auriculas*, see what offsets may be removed, as this is the best time for it. When they are taken off, fill up the pots with a compost of two-thirds well-decomposed cow-dung, and one-third light soil and coarse sand; water them and cover up at night, that they may not be checked by frost. If mild, a little gentle rain does no harm, especially as the season advances. *Bedding Plants*, prepare sufficient stock to plant the beds for summer display, which principally depends on preparation this month. Cuttings of Alonsoas, Anagallis, Bouvardias, Calceolarias, Cupheas, Fuchsias, Geraniums, Heliotropes, Lotus, Petunias, Ragworts, Salvias, Verbenas, and such plants, should immediately be struck, or the plants will be too weakly to answer the purpose. *Campanula Carpatica*, sow and plunge in heat for autumn-blooming. *Campanula pyramidalis*, pot off in eighteen-inch pots towards the close of this month, in turfy loam, well-rotted dung, and a little peat; take off all offsets but three and the central stem; place in a gentle hotbed till a foot and a half high, and occasionally water with liquid manure. *Carnations and Picotees*, go over them and clear away decaying foliage; give abundant air, to prevent their throwing up early flower-stems. See that birds do not pick off the young and tender shoots. *Chrysanthemums*, towards the close of the month cuttings may be put in. *Dahlias* for general stock, prepare early in the month a hotbed of dung, tan, or leaves, and when the rank steam has passed off, and the materials are of due temperature, lay upon the bed some light rich soil, in which to plant the roots. When they have pushed about three inches, cut off close under a joint near the root, trim off the lower leaves, and insert the cuttings round pots, in sand. Water and plunge in bottom heat. When duly rooted, pot off singly into small sixty-sized pots. After watering, place them in heat for a short time, when they may be hardened off. *Hollyhocks*, if the weather be mild, it will tend to promote the plants pushing, therefore give all air possible; if rain occur, tilt the lights at back and front, to have a current of air pass through; keep them near the glass. Attend to propagation. *Lobelias, erect,* towards the end of the month, if the suckers have sufficiently pushed, pot off singly in good rich loam and manure. *Mignonette,* sow in pots and boxes for succession. *Petunias,* place in a warm frame, to push for cuttings. *Pinks,* admit all air to those in pots. *Polyanthuses* in pots, stir the soil and top-dress; keep cool and rather dry, avoiding frost and rain. *Stocks, Intermediate and Ten-week,* may still be sown in light rich soil, and placed in a hotbed. *Tigridias,* pot, and keep rather dry. *Verbenas,* take off cuttings, and strike in a hotbed in silver sand. Seed may be sown in shallow pans.

Cultural Department in the Greenhouse.—*Alstrœmerias,* repot early. *Azaleas,* place those coming into bloom in the warmest part of the house, and remove to a colder when in bloom. To retard them, keep as cool as possible, and be more sparing of water. Young plants pushing into growth should be potted in fibrous peat and sand, and placed in a gentle heat. Be cautious in giving water to specimens. *Bulbs,* when coming into bloom, assist with a little liquid manure. *Calceolarias,* increase the supply of water gradually, and shift plants destined for exhibition. Keep clear of insects, and give air, to prevent injury by damp. Sow seed. *Camellias* should occupy an airy place, and the soil retained in an equable moistened condition, using water that has stood some time in the house to warm. Apply weak manure-water alternately. Propagate by grafting, inarching, etc. *Cinerarias,* shift into larger pots where necessary; remove suckers, which may be struck, to increase stock. Train the plants, tying the branches at regular distances, to make specimens. To secure late bloom, repot small plants, and stop them. Fumigate frequently, to keep down fly, etc. *Ericas,* give abundance of air and water as necessary, seeing that they are never allowed to flag. If attacked by mildew, apply sulphur. *Fuchsias,* place in a slight bottom heat, to start them. Prune and thin out shoots, which will make nice young plants, when struck, for late bloom. Syringe daily over the foliage. Old plants may be shaken out and repotted. *Hard-wooded plants,* as Epacrises, Corræas, Acacias, Coronillas, and other plants of this class, coming into bloom, water only when necessary, giving as much as will penetrate the whole ball of roots. *Liliums* may now be potted, but abstain from watering for a fortnight. *Mimuluses,* give plenty of pot-room, and water well. Place them in a light part of the house, and they will bloom finely. *Pelargoniums,* to make specimens, repot them in their blooming-pots. Give a free circulation of air, which gives vigour to the shoots, and prepares them thereby for a higher temperature afterwards without injury, and gives a stronger bloom. Apply a little weak liquid manure occasionally. Thin out the one-year-old plants. To have a succession of bloom, stop the shoots. A few fancy varieties may be forced for early bloom. Be careful to keep down the green fly. *Primulas,* give a little manure-water to such as are in flower. The double Chinese Primrose will require a little extra warmth, from 45° at night, to 55° or 60° by day. *Roses* in pots, syringe frequently those starting into growth; guard against green fly and maggots. *Scarlet Geraniums,* such as have been stored away in sheds and other places should be examined, and any mouldy or decayed parts removed; dust them with powdered lime and charcoal, and place them in a better light, which will cause them to produce strong and healthy shoots. *Shrubs,* see the directions for last month, which apply also to the present. A gentle bottom heat and free use of the syringe are beneficial.

IN THE STOVE.

General Operations.—In addition to the remarks of last month in this department, attend to the following. *Air* may be freely admitted during the middle of the day in sunny weather. *Cuttings,* at the end of the month these may be put in. *Potting,* the collection generally should be repotted, the present being the best time for doing it. *Soils,* place under cover and prepare for use. *Syringe,* make constant use of this, which will prevent in a great measure the appearance of the red spider, as well as keep the foliage of the plants clean and healthy. *Temperature* may be slightly raised as the season advances. *Water,* give this element freely as the days increase in length.

Cultural Department.—*Amaryllises* should be potted and gradually forwarded.

Begonias, examine the plants, such as are commencing growth, repot if required. *Bilbergias*, *Tillandsias*, *Vriesias*, and other herbaceous plants in this house will require looking to, dividing, and repotting. *Gloxinias*, *Achimenes*, *Gesnerias*, etc., may be potted for a succession at different times. *Ixoras*, place near the glass, and give air freely; repot and tie out young plants to make specimens, and increase the quantity of water. *Succulents* will require care that they be not rotted off by too much moisture, rather let them be too dry.

QUESTIONS, ANSWERS, AND REMARKS.

List of a Dozen Best Phloxes.—Oblige a *Seven Years' Subscriber* with a list of a dozen fine Phloxes, such as you know to be good and dwarf, in an early *Cabinet*.—*P. P.* [Comte de Chambord, pure white, eighteen inches. Madame Rayner, white, carmine eye, two feet. General Brea, rosy red, fine, two feet. Lychniflora, crimson-purple, two feet. Madame Couslin, blush, purple eye, two feet. Madame Thomani, deep crimson, two feet. Mrs. Winfield, lilac, shaded, pink eye, eighteen inches. Mr. Rendalter, white, ruby eye, two feet. Diana, white, pink eye, one foot. Madame Fontaine, white, carmine-pink eye, two feet. Colonel Dundas, dark plum colour, large, two feet. Addisoni, white, carmine centre, fine, two feet.—Ed.]

Wellingtonia gigantea and Chinese Iris.—It would be very acceptable to several of the readers of the *Floricultural Cabinet* to be informed if the *Wellingtonia gigantea* has stood the winter in England without protection, and how it fared; also the plan to be pursued to flower the beautiful (but now seldom seen) Chinese Iris.—*Riscemara.*

Horticultural Society.—Although unable to announce the plans of the Council with respect to the ensuing year, their views not being yet matured, we nevertheless understand that they are resolved to throw all possible vigour into the operations of the Society. It is intended that the garden should be principally devoted to practical Horticulture in all its branches, and made a great school of experiment, where all new inventions, new fruits, new garden plants, new vegetable seeds, and new building contrivances shall be fairly tested. A guide-book for the information of visitors is in preparation. Communications have been opened with foreign countries with a view to procuring exotic seeds for distribution, the forerunner of which may be regarded the beautiful hardy Pampas Grass, now giving away, and the valuable seedling Camellias, for which the Society is indebted to the liberality of one of its members, Francis J. Sloane, Esq., of Florence; these will be in distribution about Midsummer next. In addition to the usual monthly meetings in London, which retain their former character, it is said that two grand meetings are to be held in London, in some large commodious building, the one early in May for such horticultural productions as may be then procurable, and the other in October, for a grand exhibition of fruit, in which continental fruit-growers will be invited to join the English gardeners. It is even whispered that an exhibition in the garden, upon an entirely new plan, is under consideration, the great iron conservatory being cleared for the purpose, in aid of the usual tents. We entertain no doubt that these arrangements, or such of them as may be eventually carried out, will be so framed as to give the Fellows of the Society all possible advantages and privileges, beyond what the public can obtain by the mere purchase of tickets. Should this be so, a very large accession of Fellows, under the new regulations, may be anticipated. So well, indeed, do these regulations already work, that at the very first meeting after they came into operation seventeen new Fellows were elected, on the second meeting, thirty-seven; and we hear that many more candidates for the Fellowship have since presented themselves for ballot at the meeting in February. The cost of a Fellowship is now indeed so small, admission fees having been abolished, and the annual subscription being either four guineas or two guineas, at the option of the Fellow, that a considerable increase in the numbers of the Corporation seems to be a certain event. So large a number as fifty-four elections in two meetings has not occurred since July, 1821, the period when the Society was in its highest prosperity.—*Gardener's Chronicle.*

IXORAS.—This splendid genus delights in an atmosphere produced by fermenting materials, such as a dung frame, or pit. When procurable, those short stubby pieces generally found upon large plants when they have done blooming are the best to propagate from, as they root freely, and also produce abundance of branches. Take the cuttings when the wood is tolerably ripe, and having cut them into slips of about three inches long, place them immediately in small pots, in sandy turfy soil, and plunge the pots in a brisk bottom heat. If the atmosphere is not very moist it will be necessary to cover the cuttings for a time with a bell-glass, but if the atmosphere be close no such protection will be necessary. When the cuttings are rooted pot them off separately, using rich turfy peat and sand, and plunge them again in a brisk bottom heat. If sufficient heat can be commanded, it is a matter of little importance at what time the cuttings are put in; but, when a preference can be had, of course spring is the best time. If your object is to grow large specimens, select the best plants in February, and having stopped the shoots, to make the plants bushy, pot them directly they have made shoots an inch long, using rich turfy peat and gritty sand, with some small potsherds and pieces of charcoal. Maintain a bottom heat of not less than eighty degrees, and an atmospheric temperature of from sixty-five to seventy-five degrees, with abundance of moisture, and a free circulation of air. As the plants progress in growth peg the shoots out horizontally, and water occasionally with weak manure-water. When the plants require it give a second shift, and stop rude growth, so as to form compact specimens. If it is wished to bloom the plants the first season they must not be grown too late in the autumn, but air must be admitted freely, so as to ripen the wood, and set the flower-buds before winter commences. Pursue the same treatment in the second year, but keep the plants in a comparatively dry atmosphere through the winter.—*D. K.*

FORSYTHIA VIRIDISSIMA.—The management of this plant is very simple, for it delights in any free soil, and grows with considerable freedom; planted and trained against a wall, or in a very sheltered situation, it will be found a useful and excellent plant; in a sheltered situation, it will yield a quantity of flowers when such things are very acceptable. The Forsythia is readily propagated by cuttings, either of the young or old wood. If the young wood is used, the pot containing the cuttings must be plunged in a gentle bottom heat, and in a close frame, but cuttings of the matured wood will strike readily under a hand-gass in the autumn, and like other deciduous plants they may be planted out before they begin to grow in the spring. To ensure the plants blooming it is necessary that they be planted in rather poor soil, so as to ensure well-ripened shoots of a medium growth, rather than strong succulent ones, which rarely produce flowers, and are not so likely to resist the effects of a severe winter. As a plant for early forcing for the conservatory, this will be found very useful. For that purpose it should be grown in a pot, so as to induce it to form a head of small well-ripened shoots, each of which will produce a quantity of flowers, which are very durable, and a plant in the conservatory will remain in perfection for several weeks. The blossoms possess a slight fragrance at night. Perhaps the best treatment to ensure success is to take nice strong plants in the spring, and put them in pots suitable to their size, using a tolerably rich soil, and taking care to stop the shoots as they progress in growth, so as to ensure the formation of a compact and handsome specimen. As the plants progress in growth give them pot-room, by frequent shifting, but to ensure their blooming they should not be shifted later than the end of July. A few plants introduced into the forcing-house in November will be in bloom at Christmas, and by introducing some every month a succession may be maintained until their natural season of producing their flowers out of doors.—*A Practical Man.*

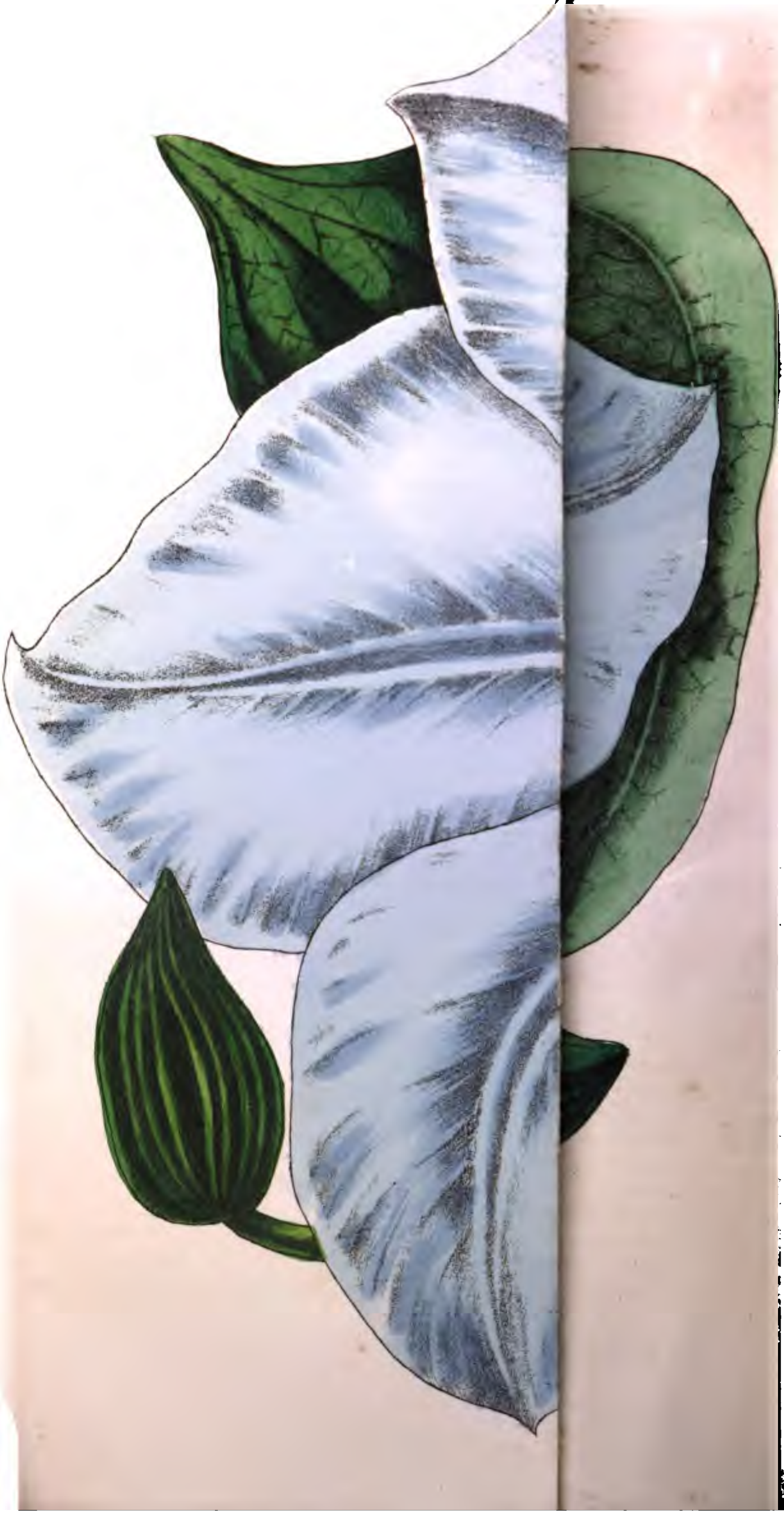
HABROTHAMNUS FASCICULATUS.—This plant, if properly managed, will bear comparison with the best of its class. Let young plants of about a foot high, healthy, and branched, be potted in large pots in May, using fibrous peat and loam, the latter predominating; set them in a cold pit, kept rather close and moderately damp, and their progress will be very rapid. The natural habit of the plant, however, is to grow erect, and with very few branches, it is therefore requisite to stop the leading shoots once or twice in summer, and by the end of August they may be set out of doors for the autumn; on their return to the conservatory a fine display of blossoms will be ensured.—*W. Taylor, Camberwell.*

THYMUS AZUREUS.—This neat little plant is one of the many species which are adapted for rockwork, and it will grow well in common peat. There is nothing striking in it, and the same may be said of most rock plants, they are well adapted for the purposes for which they are cultivated; for a tall plant on rockwork would destroy the features of the place, though there are many that would succeed. *Thymus azureus* has a purple or violet coloured flower, a short bushy habit, continues a considerable period in bloom, and greatly assists in making up a variety in all places where dwarf plants are required. The great use of these dwarf plants is that they flourish where there is but little sustenance, among stones and bad ground, where the soil is shallow and poor, and they propagate easily from seed or by parting the roots.—*J. W. T.*

PENTSTEMON COBÆA.—Having been very successful in cultivating this beautiful plant, which I consider one of the finest of the genus, I forward you my mode of treatment, which, if you think it worthy of a corner in your valuable pages, is at your service. I strike the cuttings in small sixty-sized pots, in light sandy soil, putting them into a dung hotbed frame until they are rooted, when I remove them to the stove, and place them under a hand-glass, until they are well taken with the pot, always being careful, however, to exclude air and sunshine. I afterwards gradually inure them to the ordinary atmosphere of the stove, in which they remain until such time as I consider them strong, and able to bear a colder atmosphere, to which they are gradually inured, and finally removed to the open air. It is of the greatest importance, in the early stage of their culture, to keep them from a current of cold air. The plants I wish for stock I plant in the open ground, in deep rich loam, where they stand till September, or the beginning of October. They are then lifted and put in a cool greenhouse for the winter. As, however, this is a plant very subject to mildew, and prevention being better than cure, I generally dust them well over with sulphur when housing them, even although there be no appearance of mildew present.—*J. D.*

THE VINEGAR PLANT.—A very interesting series of observations respecting the Vinegar Plant were recently laid before the Botanical Society of Edinburgh, by Dr. Balfour. Of these, which we have not hitherto been enabled to notice, we now present a summary:—Much interest has been recently excited by the statements relative to the Vinegar Plant. This plant, which has a tough gelatinous consistence, when put into a mixture of treacle, sugar, and water, gives rise to a sort of fermentation by which vinegar is produced. After six or eight weeks the original plant can be divided into two layers, each of which acts as an independent plant, and when placed in syrup continues to produce vinegar, and to divide at certain periods of growth. The vinegar thus produced is always more or less of a syrupy nature. Various conjectures have been hazarded as to the origin of the so-called Vinegar Plant, some stating that it came from South America, or other distant regions, and others that it is a spontaneous production. Dr. Lindley states that it is a peculiar form of *Penicillium glaucum*, or common blue mould. There seems to be no doubt that it is an anomalous state of mould, or of some fungus allied to it, and the peculiarity of form and consistence appears to be owing to the material in which it grows. In place of producing the usual cellular sporiferous stalks, the mycelium increases to an extraordinary extent, its cellular threads interlacing together in a remarkable manner, and producing one expanded cellular mass.

FRANCISCEAS.—Francisceas require to be grown in the stove. When at rest, however, which, in the different species, occurs at varying periods, the temperature of an intermediate house is high enough for them; and from this state of rest they are excited by a gentle increase of temperature, aided by the use of mild bottom heat. They are increased by cuttings of the young shoots planted in sand under bell-glasses, and plunged in a gentle heat. When they produce seeds, this affords another means of increase; *F. latifolia* not unfrequently bears seeds. They should be potted in a compost of fibrous peat, good mellow loam, and leaf-mould, in equal parts, enough sand being added to secure good drainage. They must have but little water while in a dormant state; but when growth has become active they will be benefited by a liberal supply, if care is taken that it does not stagnate. The large-leaved species seem to require greater supplies of water. Several of the species rank amongst the most useful of winter-blooming plants.—*D. K.*



The Floricultural Cabinet.

MARCH, 1857.

ILLUSTRATION.

CLEMATIS LANUGINOSA, VAR. PALLIDA.

IS one of the handsomest hardy climbers we possess, and is remarkable more especially for the immense size of its flowers, some of which have measured ten inches in diameter. It resembles closely in habit *C. patens* and *florida*, and is therefore excellently adapted for trellis-work, verandahs, and other erections of like character. Having stood the late severe winters at Paris with no other protection than a slight covering of leaves, we may be assured that there are few places in our country where it would not do well. It is easily multiplied by layers or cuttings, and will no doubt prove a great acquisition to all who are fond of showy climbers.

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ON THE CULTURE OF TRITONIA AUREA.

BY AN OLD SUBSCRIBER.

HANDSOME plants of easy cultivation recommend themselves to every one, and the present more especially, as it not only answers this requirement, but multiplies freely, and may be kept through the winter in any place which excludes frost. I have usually a dozen pots of this delightful bulb in splendid show every season, literally loaded with their splendid deep orange-coloured flowers, and upwards of three feet high. The compost I have found them to grow in best, consists of equal parts of well-rotted leaf-mould, sandy loam and turfy peat, unsifted, and mixed up with silver sand; this allows the roots to penetrate freely amongst it, being of a light porous character. I procure large-sized pots, in which, about the middle of February, I plant six strong bulbs, putting them in rather deep, so that they may be covered with about two inches and a half of the above-mentioned compost. If, in turning the bulbs out of the old pot, any are found to be pushing, I take care that the tender shoots are not broken, a mishap to which they are very liable, being exceedingly brittle; if this operation, however, is performed at the time indicated, the bulbs will not have made any considerable advance, and this caution will not be so necessary as when delayed to a later period. Another advantage possessed by early potting is that the plants bloom stronger. To increase stock, I separate the young bulbs formed at the side of the old ones, which I take off at the time of potting, and plant them in store pots, using a compost rather more sandy than that for old bulbs; the second or third year afterwards they make good strong-blooming plants. To return, when potted the old bulbs may have a gentle watering, enough to slightly moisten the fresh soil, after which I withhold this element until the shoots begin to sprout above the pot. Having one of those useful erections a cold-pit, I place the pots therein, where they are kept cool, and make slow and steady growth; if urged into flower by any increased temperature, the plants are weakly, and never flower so well as when thus treated. Water is given frequently, and the syringe often used as they advance in growth, the latter chiefly as a preventive to the red spider, which appears very fond of the Tritonia, and without this precaution would soon turn all the leaves yellow, by abstracting their natural juices. As the season advances I set the plants out of doors until the blossom appears, choosing a rather sheltered place for them; when coming into flower I remove them into my small conservatory, which they continue to ornament throughout the months of August and September. Under this treatment my plants are very healthy and robust, covered with fine large panicles of flowers, and bright green leaves. *Tritonia aurea* is a native of Caffraria, from whence it was introduced by Mr. Backhouse, of York, in 1848, and for which he highly merits the thanks of the gardening public.

REMARKS ON WATER AS A MEANS FOR ORNAMENT IN PLEASURE GROUNDS AND PARKS.

BY MR. GEORGE THOMPSON, ALTHORPE.

WATER contributes in an eminent degree to the improvement of landscape scenery, and on the proper appropriation of the site, extent, and form of a piece of water the success of the landscape gardener frequently depends. The neglect which this branch of the art has suffered may be attributed as much to the incompetency of the designer as to the difficulty of obtaining the required element, and it is better to submit to the deprivation than to have continually in view a misapplication of that which, otherwise judiciously disposed, would have essentially contributed to the charm of the landscape or grounds. Were proofs required of the value of water in ornamental grounds or park scenery, it would only be necessary to refer to those lovely scenes of nature, where the smooth unrippled lake reflects all the harmonious tints of the surrounding scenery; where the winding river, with its variously formed banks, enlivens the meadow and valley; where the babbling stream or rivulet trickling down its clear and pebbly bed, breaking the silence, adds solemnity to the woods; or where the impetuous and bolder cataract dashes its mighty volume into the foam and spray of the waters beneath, or perchance breaks itself into numerous eddies and streamlets amongst the well-worn rocks in its course. Scenes like these must be viewed with admiration by all possessed of taste, and are therefore desirable wherever they may be appropriately introduced on the domain of the lover of the picturesque or beautiful.

Lakes are very ornamental and proper in some situations, but require extent in length and width; a unity of character is necessary in the surrounding scenery, and its boundaries should be much diversified in form, though this particular will be considerably modified by the extent devoted to it; and no distinguishable character of outline should be observable, the little irregularities occasioned by projections and inlets are productive of a pleasing effect. A river winding along a valley or on an extended plain adds a lively interest to the scenery; where an adequate supply of water affords the opportunity for producing an artificial river, much care is requisite in directing its course, in order to avoid those regular and formal curves which so frequently mark works of art with a character offensive to the observer of nature. The regularly formed canal, with its equal width and sloping uniform banks, betrays the work of art in a very slight degree more than the regularly formed winding stream, with its sweeps and curves in geometrical exactitude, and its banks of uniform declivity. These formalities should always be avoided, for their monotony is ever painful to the eye of taste and correct judgment. A rivulet winding through well-wooded scenery is as well calculated to please the ear as the eye. The modest and musical tones of "babbling brooks" and purling streams, enlivened by the surrounding wood, amongst which they track their meandering way, are pleasing to the mind of the lover of nature in her rural dress. It is in such sequestered spots that such an one delights in being alone, removed from the turmoil and bustle of the world, and enabled uninterruptedly to enjoy and contemplate nature's works. To such retreats man is instinctively led; and who is there who has not felt it

> "Refreshing both
> To sense and soul, world wearied,"

when able to avail himself of such a sylvan ramble? Water presented to the eye in the form of a cataract impresses the mind with the idea of grandeur, and in no other form perhaps is its appearance so picturesque, especially if on a large scale, and where it is made to dash with bold irregularity over a rugged precipice, and where the adjacent ground supports a character in unison.

> "While from aloft the bursting torrents flow,
> As deep recoiling surges foam below;
> Prone o'er the rocks the whitening sheet descends,
> And viewless Echo's 'stonished ear it rends."

In the disposal or formation of ornamental water, the banks must be a particular feature in producing the character required; on these much depend as to the general effect of the subject, and much judgment is essential to their well and appropriate disposal. To some situations the gentle curved line would be best adapted; to others a comparatively straight line on one side, with perhaps a decided irregularity on the other; and sometimes the precipitous and towering bank, in places overhanging, would give good contrast and effect. The curved undulating line may be introduced where a continuity of a flat piece of water is visible, or where an irregularity of outline in the distant scenery is manifest, and where any high and much-projecting forms in the foreground cut the irregularity of the distance, then the opposition of the curved line will be more particularly requisite, and truly in harmony. A partial flat in parts is frequently desirable, to give a view to the more interesting portions of a piece of water to be seen from the house, or any other conspicuous point of view, as well as sometimes being in contrast to the precipices of another portion of the bank; and sometimes, where a river is much covered, a flat surface might in parts afford a view of some distant curve. A portion of the river thus reappearing at a distance would be truly interesting; and this effect might even be produced under some circumstances with a lake, as well as a river. The perpendicular and towering bank helps much to vary the appearance and character of the sides of a lake or river, opposing the regularly sloping bank, or even a dead level; to produce the picturesque these oppositions should be carefully studied. The great object in works of this kind is so to dispose them that they shall not appear the studied production of art. Here may well be taken into account the component parts of banks, as well as their forms considered as a whole, for on these parts depend much the character and effect produced. No better guide can be followed than the composition of natural banks, and the varieties of strata remarked; as we frequently observe that those of a soft nature are washed away by the stream, leaving projections of stronger substances. Parts being undermined, portions of green turf are thrown down, perhaps resting midway, from which sometimes are observable brambles or other bushes, just able to obtain support, and throwing their branches towards the stream below, all which combine to produce the most lively interest; and in works of art, where picturesque beauty is an object, by observing and imitating these striking features, as well as other prominent peculiarities, the work may be made to assume a character of natural irregularity and beauty, which is too seldom observed in artificial productions.

ON THE MANAGEMENT OF ORCHIDS.

BY MR. WILLIAM BIERLEY, GARDENER, SANDEN HALL.

THE Orchidaceous tribe of plants is a peculiarly interesting one, whether we consider the singular forms under which they put forth their strange blossoms, the great variety of colour manifested not only in the tribe, but even in a single flower, their peculiar habit and modes of growth, or their quaint and exotic appearance; all combine to add interest to them, and give rise to expressions of wonder and delight when a good collection is viewed in full perfection of growth and flower. The cultivation of Orchids has become much more general within the last dozen years than it was before, and many persons now attempt to form a small collection who heretofore would have considered them as beyond their reach or means. I have here a good selection which has been under my care for some years, and, with a view to assist beginners in Orchid-growing, beg to give a few general remarks.

Of Orchids, some are terrestrial, growing like English Orchises, but the greater number of them, and by far the most interesting, are those growing upon trees. Some of this class delight in a very elevated situation, upon the summit of the higher trees; others upon low bushes, or decayed parts of old trees. They are not found growing generally through the forests, but are choice in their place of growth. The trees overhanging a river are in many instances found to be a habitation for them, but even under such an advantage, it is observable that a considerable number of miles may be passed in their native habitats and not a single plant be discovered, when a sudden turning in the course of the river presents itself, and most probably rendering the atmosphere at such a situation somewhat different from the general course of the river, a considerable number of trees have been found to be literally loaded with the plants. Although fond of a damp atmosphere, this tribe delights in a free circulation of air. Collectors in general state that whether they are discovered upon old trees in a forest, or by a river, they are nearly always found on the outskirts, where they can have occasional exposure to the sun and a free admission of air. However numerous may be the plants growing upon a single tree, not more than five species were ever discovered on the same tree.

Collectors have informed us that, like all other plants, Orchids require a resting season. In their native places, this is during the period there termed the "dry season," when the heat is lower; and the growing and blooming time in the "wet season" of the year, the heat being much higher, reaching to 90° or more. These particulars should always be attended to by growers of Orchids in the stove; the greater the heat, the more powerful the moisture and the freer admission of air. To cause the plants to flourish well, these conditions must be obtained; and as they are best realized in spring and summer, the most suitable season of rest is from November to the end of February. During this period the plants should not stand upon a heated flue, but upon a trellis placed upon it. The heat of the house should be regulated so as to keep it 60° by night, and allow it to rise to 68° by day. The plants will not require much water at the roots while resting, but during the middle of each day the warm flue should be sprinkled with water, to cause a little humidity. When the resting season is over many kinds will generally require repotting. I have not confined my practice to that time only; but when during summer a plant seems to want such extension of room, I afford it immediately by repotting, or in some cases keep raising the soil, etc., by piling additional portions successively. In order to secure the plant steady, I fix a strong stick, at the first potting, nearly at the centre of the pot, and by fixing two cross pieces of wood to it, extending crosswise the inside of the pot near the rim, it becomes quite firm when the soil is filled in, and is a very useful support to the plant; indeed, in some instances it is quite indispensable.

The most suitable soil to grow the plants in is sandy peat, not a soddened kind, but having as much stringy roots in it as, when cut into portions an inch square, will cause each piece to adhere. In some instances I use decayed wood from trees mixed with the peat, and a portion of vegetable mould. In potting, I always give a good quantity of broken pots for drainage, so as to allow the water to pass off quickly. If this be not attended to, the water would become stagnant, the soil soddened, and the plants would most certainly be sickly. I always use water of a tepid temperature, to prevent check being given from cold, and do not sprinkle the plants over the tops more than three times during a year, then merely for the purpose of washing off dust; I prefer sponging them over.

When the growing season commences, the temperature of the house is raised from 65° to 72° by night, and from 72° to 95° by day. Instead of syringing over the tops of the plants, I sprinkle the flues twice a day, about ten o'clock in the morning, and two in the afternoon; this supports them during a powerful sun, by rendering the air humid. I do not allow the flue to be moist when the sun has set; for if the house be then closed in a very damp state, some of the delicate plants would probably be killed by it, and to very few it is beneficial.

The term *Orchid* is general, some being *terrestrial*, others *parasitical*, and again others are *epiphytes*.

Parasitical Orchids are such as are either destitute of the power of pumping up their nourishment from the soil, or of elaborating it completely, or that cannot exist without absorbing juices of other vegetables. These may be divided into, first, those which grow on the surface of others, as the *Cuscuta* and *Mistletoe;* and, secondly, intestinal parasites, which are developed in the interior of living plants, and pierce the epidermis to make their appearance outwardly, such as the *Uredo* and *Æcidium*. *Epiphytes*, or false parasites, are such as grow upon either dead or living vegetables, without deriving any nourishment from them. This class, which has often been confounded with the preceding, has two distinctly characterised divisions. The first, which approaches true parasites, comprehends cryptogamous plants, the germs of which, probably carried to their stations by the very act of vegetation, develope themselves at the period when the plant, or that part where they lie, begins to die, then feed upon the substance of the plant during its mortal throes, and fatten upon it after its disease; such are *Nemasporus*, and many *Sphærias;* these are spurious intestinal parasites. The second comprehends those vegetables, whether cryptogamic, such as *Lichens* and *Musci*, or phanerogamous, as *Epidendrums*, which live upon living plants, without deriving any nutriment from them, but absorbing moisture from the surrounding atmosphere; these are superficial false parasites; many of them will grow upon rocks, dead trees, or earth.

In an early number it is my intention to furnish a few practical instructions on the treatment of some genera which require particular management.

ON THE TREATMENT OF ANNUALS.

BY MR. G. W. MANLY, STOKE.

ONE of the prevailing faults in the sowing of annual flower-seeds is sowing too thickly; in consequence of this, how often do we find such poor displays of bloom, and such weakly, drawn-up plants. On the other hand, too rich a soil is unsuitable for the majority of this class, leading to the production of a great quantity of leaf, without a proper show of flowers, and thus, by these prevailing faults, we frequently lose fully one-half the beauty we should otherwise receive from a nice display of the bloom of this interesting class of plants. Very little richness in the soil is necessary for hardy or half-hardy annuals, excepting perhaps German Asters and intermediate Stocks. Some few indeed prefer a light and rather sandy soil, as the Calandrinias and others. When sown, the seed should be scattered thinly, or if not, the plants will require to be thinned out so soon as they arrive at a sufficient size to permit the operation to be done, according to their habit, whether upright or creeping. Very fine seeds may be scattered better by being mixed with small dry sand. Thinning out ought to be conducted on the principle of leaving sufficient room for each plant to develope itself fully by the time it is coming into bloom, by which plan we may always ensure fine flowers, and plenty of them. To have them bloom early in spring they must be sown in autumn, soon after the seeds have been sorted and dried, but in this case a few will require a slight protection from winter frosts; early in spring they may be transplanted. The Californian annuals are well adapted to this treatment, and bloom quite as well under it as those which are sown in spring to flower in summer. For a succession they may be sown through spring, and even up to midsummer, which will keep up a display until the frosts of winter put a period to their beauty. Half-hardy annuals should not be sown out of doors until we feel assured frost has left us, which is seldom earlier than the end of April. Some of this class are best brought forward by sowing in pots or boxes, plunged in a gentle hot-bed, and transplanted in the open air about the beginning of May. Transplanting is beneficial also in checking a tendency to over-luxuriance, and thus causes a greater profusion of flowers. Annuals may be made to bloom for a lengthened period if the formation of seed be prevented, by cutting off the flowers as they decay. In this manner the common Mignonette may be rendered perennial. After the plants have made progress in the open ground, all that is necessary to be done with annuals is to keep them a little in order, and free from weeds, with due attention to watering them in dry weather.

For small beds or gardens, the dwarf kinds look best, and should be invariably placed nearest the sides of the beds, even in gardens of greater pretensions, with the taller sorts in the rear, or towards the centre, and attention is also needful to a proper disposition of the colours, in which much may be done, whether sown in patches or in masses of one bed of a sort. To some these remarks may appear trivial, yet I think they may be useful, at least to the young amateur, for unfortunately we do not often see these useful things treated as they ought to be.

CLIANTHUS PUNICEUS, AS A STANDARD.

BY WILLIAM WAINWRIGHT, ESQ., DUTTON HOUSE.

AS a standard this plant makes a very beautiful object, and is well worthy of a place wherever it can be grown; its beautiful pendent racemes of coral-red flowers and fine foliage conduce to place it in a high position in the catalogue of ornamental greenhouse shrubs. I have thrown together a few remarks on the treatment pursued by myself in forming standards, which may be successfully followed by those having the means at command, assuring them that they will consider themselves amply repaid their trouble when the plants have become established blooming standards. I commence by taking off cuttings in the first week of June, and these should not exceed four inches in length, being also of the present year's growth; before inserting the cuttings I find it advantageous to allow them to remain for a day, to dry off some of their superabundant moisture, which not only causes them to take root sooner, but also ensures greater success. I strike them in sand, inserting the cuttings about two inches, and covering with a bell-glass. Introduced into a house or pit where they may have a temperature of about seventy degrees, they will speedily take hold of the soil, and when nicely rooted, I pot them off separately into small-sized pots, using a compost of good loam, leaf-mould, decomposed cow-dung, and sand, all well mixed and roughly sifted. When potted, I place them in bottom heat until they are well rooted, afterwards removing them to a cooler and more airy situation in a greenhouse or conservatory. As the plants progress I shift them occasionally, and give constant attention to watering. All side shoots will require to be pinched off as they appear, to obtain a clear straight stem of the desired height, and to ensure the latter, the plants must be sticked and regularly tied up. When they have attained the wished-for height, I pinch off the tops, in order to cause the production of a head, and continue to pinch the laterals in until I have obtained a nicely formed bushy head, yet not too crowded with branches, and richly decorated with its thick dense foliage. When thus treated and planted out in the conservatory, in good rich loam, cow-dung, and leaf-mould, they will make splendid objects. Before planting them, I have a pit dug in the border of the conservatory, three feet square by two and a half deep, for the reception of the compost, then inserting the plant a little deeper than it was when in the pot, and securing it to a stake. In such a situation *Clianthus puniceus* flourishes far better than in pots, and, if well supplied with water when in a growing state, will flower most abundantly, resembling at a little distance a Laburnum, with handsome bunches of rich red blossoms.

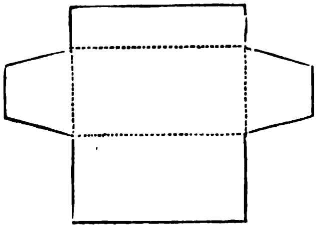
PRACTICAL HINTS ON THE STUDY OF BOTANY, AND THE FORMATION OF HERBARIA.

BY A NORTH-COUNTRY SUBSCRIBER.

THE student having made himself master of the outlines of the science of botany so far as to understand the principles of classification and the system of Linnæus, he should by all means apply himself to the natural system, to which the former may be considered as a useful preparatory course; not that there exists any close similarity or likeness in the two systems, but as a means of his becoming thereby acquainted with the organs of plants, and an easy method of discovering the names of such species as may fall under his notice. To become more intimately versed in a knowledge of plants, their structure, physiological peculiarities and points wherein they differ or approach each other, there is nothing like the natural system, to which I would earnestly advise the young botanist to apply himself. Let him particularly examine the structure of such plants as he may select, making careful drawings of each organ, and preparations from the plants themselves, to serve for reference and examination as he proceeds in his studies; for, as it has been justly observed, "there can be no doubt that the exact investigation of the structure, in all particulars, of the commonest plant tends more to a correct knowledge of botany than the superficial examination of all the plants in nature." But it must be remarked that it is only by the examination of a considerable number of plants that just views of the science are attainable, and for this purpose access to a garden is necessary; whilst the study of the plants indigenous to the soil, and natives of our own country, may be carried on in conjunction with that of exotics. The distinction of natural orders demands primary attention, then the differences of genera, and, lastly, of species. It has been supposed that there are perhaps one hundred thousand species of plants, which are distributed through about nine thousand genera, all contained in something like three hundred natural orders; from the consideration of which it will be seen that unless the smaller leading groups be examined first the mind will become bewildered, and fail to receive a proper impression of the relationship which genera and species bear to each other, or of points wherein they differ. For the purposes of investigation, and to have at all times ready access to plants, there is no plan possessing so many advantages as that of preserving specimens by drying them, and forming a *herbarium*, without which it is manifestly impossible to obtain any particular plant in some localities and at certain seasons. A good herbarium should consist of well-selected specimens, showing their manner of growth, and all the various parts and organs which are peculiar to each species. For the guidance of such as are about to form a herbarium, I would recommend them to proceed after the following method, and such a collection, judiciously formed, correctly named, and well kept, is an indispensable requirement to the botanist.

The specimens selected are to be placed between sheets of smooth, soft, brown paper, such as that made by Bentall, expressly for this purpose, or where any difficulty may exist in procuring this kind, common blotting-paper will answer almost as well. Each specimen must be spread out evenly, a sheet or two of paper laid over it, then another specimen and so on, until a small pile is made; the whole may thus be placed between two smooth boards and pressed by a weight, which should at first be rather light, and gradually increased. As fast as the sheets become damp they will require removal, dry ones being substituted in their place; for this purpose it is well to examine them daily whilst the drying is going on, or, if this be inconvenient, each alternate day will suffice. Various presses have been invented for facilitating the drying process, for common purposes however, two or more boards, planed smooth, a stout strap to buckle, and a wedge or two, answer very well; in this press a few clean sheets of paper are laid on the bottom board, followed by a specimen, more paper and other specimens, with a board occasionally introduced according to the size of the pile, to keep the whole flat and even; the specimens being thus laid out, the upper board is put on and the strap buckled round them, under which the wedges are driven, gently at first, and tighter at each succeeding change or shift of the papers, until the whole of the specimens are thoroughly dry. During this process most of them will have lost their colour, but retain the form of even delicate parts, and, when carefully dried, in great perfection. Such as are thin dry rapidly, whilst fleshy plants must remain considerably longer under pressure, although the process is facilitated and the time materially shortened by steeping them for about an hour in a strong solution of bichloride of mercury (corrosive sublimate), before placing them in the press; this solution is further useful in causing leaves of certain plants to adhere, where they would otherwise to a great extent fall off, and in preventing the attack of minute insects. A ticket or label should accompany each specimen as placed in the press, giving the name, date, and locality, together with any other useful particulars; as for example, of indigenous specimens, the nature of the soil, and whether abundant or rare in the spot whence they were taken. When thoroughly dried, it is advisable to wash each one separately with a half-saturated solution of corrosive sublimate in spirits of wine, laying it on with a large camel-hair pencil; such plants as were previously dipped in this solution before drying will need no farther application of the solution. The object of applying the corrosive sublimate is to preserve the specimens from the attacks of insects, which it does very effectually. To secure the specimens, the student will require a number of half sheets or leaves of white paper, rather stout and large, on which to gum them down. These should be of sufficient size to hold the largest specimens, and throughout the whole collection such size should be adhered to, so as to secure uniformity of appearance; for most persons foolscap paper may suffice. Some sheets of a thinner description of paper will also be necessary, over one side of which a coating of adhesive mixture should be laid, this is best composed of equal portions of gum arabic, sugar, and powdered tragacanth, made into a rather stiff solution; after being brushed over one side of the thin paper as before remarked, it is cut up into strips when dry, and used for fastening the specimens down to the papers which hold them; the breadth of these strips may vary from the eighth of an inch to a quarter.

Having carefully laid out a specimen on the sheet designed to receive it, small bands or strips of the gummed paper are moistened by the tongue, and fixed across the main stem and branches, which will secure the whole firmly down to the paper. It is advisable to place no more than one species on each sheet, although there may be as many specimens of it as the student pleases. Where a single specimen suffices, it should be attached to the paper either on the right or left side of the centre, and the next sheet should have a specimen on the contrary side, so that when placed in a portfolio they may lie even and flat, which, if every specimen were secured to the middle of the paper, would not be the case, but would bulge out there very considerably. The vacant space on the other side of the centre may be written on, or have a ticket gummed on, showing the name, native country, date of introduction, and any other information, according to the requirements of the collector. On the same side may be attached small paper pockets, similar to the envelopes used for letters, and cut in the annexed form, folding along the dotted lines; these are for the purpose of holding small fragments, flowers, leaves, etc., for examination by the microscope, to avoid the necessity of breaking pieces off the specimen plant, when it is desirable to examine the species by the aid of magnifying power.



(*To be continued.*)

HISTORICAL REMARKS ON THE MOUTAN PÆONY.

BY R. T. W. T.

FOR ages the Chinese have been celebrated for their love of flowers, as well as for their industrious and patient attention to the cultivation of plants, and it appears to have been the only country on the globe where this profitable and delightful employ has not met with serious interruption, since the gardens of China are in all probability older than those of the Babylonian and other ancient nations, which have passed away "like the baseless fabric of a vision." That we did not sooner possess the superb Tree Pæonies of China may be in a great measure owing to the vulgar prejudice which formerly existed, of treating all singular relations as "travellers' stories," and believing only what one's own eyes had seen; otherwise, how are we to account for the long neglect in obtaining this and many other rare plants, which were made known and fully described to us as far back as the year 1656, when the first embassy which the Dutch East India Company made to China returned to Europe? The attendants of this embassy appear to have had freer access to that country than has been granted to any subsequent embassies that have been sent out, and we find they not only passed from Canton to Pekin, but visited and faithfully described everything worthy of notice, and were even allowed to visit the gardens of the Emperor of China; yet this excellent work, which first made known that delightful fruit the pine-apple, the refreshing leaf of the Tea, and the magnificent flower of the ***Moutan***, or Tree Pæony, was so much neglected, as a volume of travellers' stories, that little account appears to have been made of its description of the vegetable kingdom, although it was translated into English, and published in London in the year 1669, and from which we shall extract Nievhoff's account of the Tree Pæony, to show not only how faithfully it is described, but that inquiry must have been made as to what part of China it was indigenous.

This author says, under the head of flowers, "There are several rare and well-scented flowers which grow in these parts, that are unknown to those of Europe. In the province of Suchue, near to Chungking, grow certain flowers called ***Meutang*** (***Moutan***), in high esteem amongst them, and therefore called the King of Flowers. It differs very little in fashion from the European Rose, but is much larger, and spreads its leaves further abroad; it far surpasses the Rose in beauty, but falls short in richness of scent; it has no thorns or prickles, is generally of a white colour, mingled with a little purple; yet there are some that are yellow and red. This flower grows upon a bush, and is carefully cherished and planted in all gardens belonging to the Mandarins, for one of the most choice flowers" (p. 250). Even after this description of the plant it remained unknown to Europe, until the late Sir Joseph Banks, whose mind had expanded itself beyond that of his fellows in general by travel and the study of nature, and who ever alive to benefiting the world by scattering its blessings and its beauties over the remotest quarters of the globe, gave instructions to several merchants trading to Canton to inquire for the ***Moutan***, the name by which the Pæony is known in China; in consequence of these applications, numerous specimens were sent to this country about the year 1789, but most of these plants perished in the voyage. About the year 1794 other plants were imported, and since that time the Tree Pæony has frequently been brought from China in a growing state.

This favourite flower of the Mandarins is said to have been cultivated in China upwards of fourteen hundred years, yet the singular inhabitants of that ancient empire think so little of that period as to consider it rather a plant of modern than of ancient introduction. The Chinese writers differ in their accounts with regard to the origin of this shrub, some attributing it to a particular process of culture, by which the common herbaceous Pæony has been converted into this magnificent shrub, which is said to reach the height of eight or ten feet in the province of Loyang, where the soil and climate seem particularly favourable to the growth of this plant. Some of the Chinese authors tell us, and perhaps with more correctness, that the *Moutan* was first discovered growing among the mountains in northern China, whence it was brought into the southern provinces, and there cultivated with the same mania as Tulips have been in Europe, since we are told that some choice varieties of the *Moutan* have been sold in China for a hundred ounces of gold, though we receive such accounts with considerable qualification. It is propagated in China principally by seed, and by this process such numerous kinds have been raised, that they now enumerate no less than two hundred and forty species as they call them, some of which are said to be of delightful fragrance.

The Tree Pæony sold for high prices when first it got into the hands of the nurserymen in the vicinity of London. When these plants were first known in France, Monsieur Noisette, a nurseryman in Paris, sold them from one thousand five hundred francs to one hundred louis each.

When the different varieties of these magnificent flowers are inoculated on the branches of a single plant, it is hardly possible to conceive a more splendid effect than it presents, by its fine lobed foliage and the superb size of its flowers, some being nearly a foot across, and which vary from the finest carmine and the most delicate blush of the Rose to pure white. To Mr. Fortune we are indebted for many of the finest varieties at present grown in England, far surpassing in size and colouring any of the older varieties.

It is easily increased by layers and cuttings, as well as by parting the roots, and may be treated in a similar manner to the Hydrangea, protecting it from the excessive heat of the midday sun, allowing it ample watering when in flower, and removing all superfluous buds before the principal flowers are expanded.

OUR NATIVE ORCHIDS.

BY W. W.

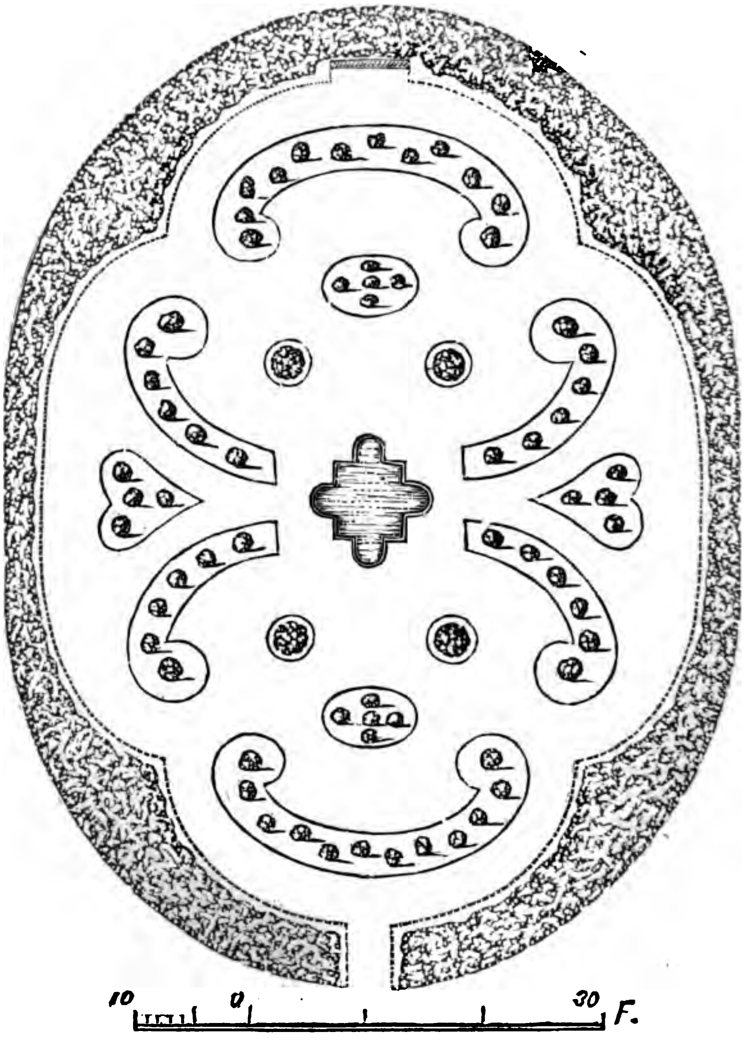
OUR pretty indigenous Orchids and their congeners thrive tolerably well under the following treatment: select a convenient spot, a north border or the north side of a hedge, which is sheltered from midday sun, and protected from cutting winds in spring. Take out the soil to the depth of twelve inches, lay three inches of broken brickbats at the bottom of the excavation, cover them with thin turf parings, and fill up the remaining space with a compost of one-half decomposed soil from an old melon bed, one-fourth peat, and one-fourth rough sand. Plant the roots about three inches deep, surrounding the bulbs with an inch of sand, which will prevent them from perishing in wet weather, and absorbing the moisture when the plants are in a dormant state. In March and April place a light covering of fern or furze over the bed, to shelter them from cold winds, as at this season they frequently get cut off by frosty wind, even in their wild habitats. Those species which have succeeded with me treated in this way are, *Habenaria bifolia*, white; *Orchis morio*, purple; *O. mascula*, purple; *O. maculata*, flesh colour; *O. latifolia*, pink; *Gymnadenia conopsea*, purple; *Herminium monorchis*, green; *Listera ovata*, green; *L. cordata*, brown; *Epipactis latifolia*, purple; and *E. palustris*, purple. The following species are somewhat more tender, and in order to ensure their preservation for several years, they should be potted in the same compost as directed for the bed before described, with plenty of drainage at the bottom of the pots, and also a layer of sand beneath and around their bulbs. When their flower-stalks decay, place the pots close under a south wall or hedge, where little rain can get to them, or lay the pots on their sides to prevent their getting over-wet. In autumn they ought to be placed in a cold frame facing the east or west, but avoid the south, and here they may remain till April. Shift them every spring, clearing away all or nearly all the mould from their roots.

Those that require this treatment are *Orchis pyramidalis*, (syn. *Anacamptis pyramidalis*), red; *O. ustulata*, purple; *O. militaris*, purple; *O. fusca*, brown and purple; *O. hircina*, brown; *Habenaria virescens*, green and yellow; *Aceras antropophora*, green; *Ophrys muscifera*, purple; *O. apifera*, purple; *O. aranifera*, green; and *Neottia spiralis*, white. I find that some few plants of this class, as *Epipactis pallens* (white), *E. ensifolia* (white), and *Neottia nidus-avis* (brown), can seldom be preserved above a single season under any treatment with which I am acquainted. Should any subscriber to the *Cabinet* be so fortunate as to manage them better than I have been able, it would be a service rendered to many cultivators of British plants, if he would communicate his plan through the medium of this work.

Neottia spiralis, although supposed by some persons not to flower in the same spot again for years, will be found, when treated as above, to flower annually, and to increase faster than many of the other species. Should you think this communication worthy of a corner in your valuable work, Mr. Editor, I shall at some future period be happy to give more minute details of the treatment of each particular genus of British Orchidaceæ.

DESIGN FOR A LADY'S PARTERRE.

BY T. RUTGER, ESQ.



The annexed design, of small dimensions, and simple for laying out, may serve for a lady's flower garden. In order to walk dry at all seasons, it is laid down on gravel, and supposed to have box, or some other edging, for the clumps. The circles, ovals, and small side clumps may be furnished with flowers in mass, and the scrolls with flowers in variety. The whole is surrounded with a close shrubbery, has a small pond in the centre for gold and silver fishes, and a seat at the end of the garden.

ON THE MANAGEMENT OF BOUVARDIAS.

BY MR. S. GRANT, LEOMINSTER.

BESIDES being well adapted for greenhouse decoration, these beautiful half-shrubby plants are hardy enough to suit the open border or flower-bed in the summer season, especially in a warm place. Bouvardias are all readily increased by striking the small side shoots, which for this purpose should be taken off early in spring, inserted in silver sand under a bell-glass, and plunged in a gentle bottom heat; the more woody varieties propagate most freely. Another and perhaps easier method is to divide some of the strongest roots in March, when vegetation is just commencing, cutting them in pieces about an inch long, and potting in sandy loam and peat; after which they will make rapid progress, if plunged in bottom heat, where a temperature of about seventy degrees is maintained. After the young plants have attained two or three inches in height, more air and exposure is necessary, though, when repotted or shifted, a closer atmosphere for a short time encourages their growth. If for out-door planting, they should not be bedded before midsummer, otherwise a slight protection will be necessary. They are also capital things for covering the lower portion of conservative walls, where they will attain about three feet in height, and make a good display. In the house, they are liable to be attacked by green fly, in which case the timely use of tobacco-smoke, and frequently syringing before the bloom is set, will serve to keep this pest down. Air and water may be freely allowed during summer, but should gradually be diminished as autumn comes on, which will allow the wood to ripen. The woody varieties may be kept through the winter in a rather dryish soil, in the same manner as Fuchsias, and the stems pruned, which I have always found to furnish bloom sooner than new shoots from the bottom of the plant. The temperature should be kept at not less than thirty-five degrees in winter; a suitable place for them will be found under the stage of a greenhouse, free from drip. If the plants are intended for bedding, however, next season, let them be cut down, to produce bushy plants, which are better for massing, although they do not flower so early as when treated as above.

NEW AND CHOICE ANNUALS.

ACROCLINIUM ROSEUM, a pretty half-hardy annual, of easy culture, flowering profusely in a mixture of peat and loam. It grows a foot high, and its everlasting-like flowers are of a bright rose colour, somewhat resembling those of *Rhodanthe Manglesii*, although considerably larger in size; like that plant it is a native of the Swan River Colony. *Calliopsis coronata*, an improvement on *C. Drummondii*, which it resembles in habit; the flowers are much larger, of a golden yellow, having a circle of large crimson spots half-way down the florets. *Salpiglossis sinuata*, var. *grandiflora*, the colours are very varied, and the flowers much larger than the old species of this genus, to which they will prove a desirable acquisition; treated as half-hardy annuals they will flower well. *S. sinuata*, var. *atro coccinea*, colour deep orange-scarlet; this variety is useful for bedding purposes. *Tropæolum minus*, var. *coccineus*, when employed for bedding, it flowers more profusely if plunged in the beds in small pots; its habit is very dwarf, and an abundant bloomer, being literally covered with bright orange-scarlet flowers. *Clintonia pulchella atro-violacea*, flowers of a much deeper violet than those of *C. pulchella*, of which the present is a variety. It makes a pretty pot plant, as well as being very suitable for small beds; grown in a mixture of peat and loam, it will flower all the summer. *Clintonia pulchella alba*, a new white variety. *Lobelia ramosa nana*, a dwarf variety of the old *ramosa*, well adapted for bedding; it is a brilliant blue, and of compact habit. *Whitlavia grandiflora*, in habit this resembles *Eutoca viscida*, but its blossoms are large bells of a deep violet, similar to those of a Canterbury Bell; it is a perfectly hardy annual. *Collinsia bicolor alba*, flowers snow-white, produced in abundance, which present a fine contrast with the dark glossy green foliage, and make it a valuable addition to our hardy annuals. *Nicotiana glutinosa*, a new tobacco plant, flowers red and buff, campanulate, borne in long panicles; foliage fine and large. A half-hardy species. *Sebæa aurea*, a hardy Cape annual, flowers Gentian-like, and golden yellow; it does well in the open ground, but requires to be raised in a hot-bed. *Cosmidium Burridgeanum*, the blossoms, when fully expanded, are two inches across, resembling those of *Gazania uniflora*, a rich chocolate-brown centre, with orange outside. It blooms abundantly from July to October, growing about eighteen inches high, and should be treated as a half-hardy annual. *Sabbatia campestris*, half-hardy, with star-like Gentian flowers, of a rosy pink, with a yellow centre; succeeds well when raised in light soil, in a moist heat. *Ipomœa reniformis*, a stove annual from the East Indies, said to bear large buff-coloured flowers with a violet centre, and handsome laciniated foliage. *Veronica Syriaca*, a dwarf plant, suitable for bedding, being a very profuse bloomer; flowers a lively cobalt-blue and white, in equal proportions. *Pharbitis limbata*, a fine tender annual, of the Convolvulus tribe; flowers rich violet-purple, with a broad edging of pure white; not so generally grown as its merits deserve. *Linum grandiflorum rubrum*, this is a first-rate annual when treated properly, and of easy culture; flowers free, large, and an intense scarlet-crimson. *Oxalis rosea*, a charming, dwarf, half-hardy annual, an abundant bloomer, rosy purple or lilac; useful for an edging or pot culture. *Kaulfussia amelloides rosea*, an interesting hardy annual; flowers at first deep rose, changing to flesh colour. *Lupinus subcarnosus*, may be treated either as a hardy or half-hardy annual, and succeeds well in pots; flowers violet-blue, the centre of the upper petals marked with a square white spot. *L. pubescens*, var. *elegans*, purple-rose, and white. *L. Hartwegi*, var. *albus*, at first pure white, changing afterwards to blush. *L. Dunnetii superbus*, flowers in long spikes, purple, lilac, and yellow. *Nycterinia Capensis*, a beautiful half-hardy annual for a pot, resembling *Erinus Lychnidæa*, the flowers are white, purplish beneath, large, in the evening very sweet scented. *Chenopodium atriplicis*, flowers small and clustered; these, as well as the young shoots and leaves, are covered with a shining, purple, mealy substance, giving it a very attractive appearance; it is quite hardy. *Chænostoma fastigiatum*, deep rose colour; a very pretty plant for borders, growing six inches high; half hardy. *Brachycome calocarpa*, white, a large-flowered variety, growing a foot high; half-hardy. *Sedum cœruleum*, a very pretty little half-hardy annual for pots, being completely covered with small pale blue flowers. *Vesicaria gracilis*, a neat yellow-flowered border or rock annual, flowering profusely, and growing about a foot in height. *Erysimum asperrimum*, a fragrant sulphur-coloured variety, quite hardy, eighteen inches high. *Escholtzia tenuifolia*, sulphur coloured, hardy, attaining about nine inches high, and very neat.

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POT CULTURE OF JAPAN LILIES.

BY AMICUS.

WE will commence with the bulbs, in the state they are usually found when they have done blooming, which will be early in November; they may then be removed to a rather warm situation, and as dry as you can command, and give them little or no more water. I generally water lightly two or three times after my plants are placed in circumstances to ripen. A warm greenhouse or pit, kept rather close, if not moist, will effect this important desideratum perfectly. As soon as the bulbs are sufficiently matured, which will be known by the decay of the leaves and stems, they had better be repotted; not that this is of importance at present, but it will economise space, and prevent the operation being neglected until after they have made fresh roots. The soil in which they have been growing ought to entirely removed from the bulbs, and the latter divided as may be thought proper, for there will always be found about the crown of the parent some small bulbs, which may be placed in four-inch pots. If the ripening process has been complete, the roots will not be troublesome; but if not, there will be found a quantity of fresh roots remaining. When such is the case I leave them to themselves for some time longer, for I never pot while I require to cut or break the stronger roots, but merely strip my fingers through them, in order to remove those that are decayed. The pots should be just sufficiently large to receive the bulb and strong roots adhering to it; give a moderate watering to settle the soil, and place them in the greenhouse or cool pit. They will require no further attention until the season begins to excite vegetation, when they must be regularly attended to. Water as soon as you see signs of growth, but sparingly until they have made leaves, etc., to draw up and give off moisture. March will generally be found to be the time when they will commence growth. As soon as they are above the soil, remove them to a situation where they will be near the glass and have plenty of air, for after-success depends upon getting them strong at this stage. Do not allow them to remain in the small pots in which they were wintered until their roots become matted; the best way of managing this is occasionally to examine them. I always shift into the flowering-pots just as the plants have protruded an abundance of fresh roots against the sides of the pots. For strong bulbs with one stem use twelve-inch pots, and for such as produce two stems a size larger. Weaker bulbs, such as produce about seven flowers, will not require pots above eight inches, and offsets of the first year will not require above five-inch pots. In shifting into the flowering-pots, be careful to place the crown of the bulbs about three inches below the surface of the soil, as they produce a quantity of strong roots from the base of the stem. They ought, after potting, to occupy a place near the glass; and avoid a warm house if you wish a strong bloom. As regards watering, they must have a careful supply, neither too much nor too little; but if they can be sprinkled overhead with the syringe before shutting up the house, they will not require much water at the roots for some time. Towards the end of May, if the weather is favourable, they may be placed in a warm sheltered spot out of doors, and ought to have their stems tied to a stake, in order to prevent their being injured by wind. A few plants may be retained in the greenhouse, with a view to have them in flower earlier; indeed, I place some of my bulbs in a moderately close warm house early in March, and I manage to have them in flower early in August, others I retard, to prolong their flowering until October; but a season's practice will be the best guide in this matter. These Lilies are not liable to suffer from the attacks of insects, but the green fly will occasionally make its appearance upon such of the plants as may have been kept over-warm. If so, fumigate at once with tobacco-smoke, or wash the leaves with weak tobacco-water. I have said nothing about soil, for they are not very particular in this respect. I use fresh fibrous loam and peat in equal portions, with a sufficient quantity of sand to render it porous; if peat cannot be had, use leaf-soil. Some say, however, that the flowers are much higher coloured in peat. If you wish to propagate them, it may be effected by means of the scales of the bulbs. Fill a pan with soil similar to that recommended for growing them in, lay the scales upon the surface, and sprinkle a little fine soil over them; give a little water, and place the pan in a close warm atmosphere.

ON THE NATURAL LOVE OF FLOWERS·

BY ALICE.

THE love of flowers is so universally inherent in youth, that scarcely an exception can be found amongst children; whether inhabiting the confines of our cities or exclusively nurtured in the provinces, all have a peculiar interest in the vegetation of the various seasons as they unfold their several charms. We have all of us in the *spring of life* felt ardently and with singular enchantment the *vernal floral* developments. Who, in his suburban rambles, can forget the ecstatic exclamation at the first-discovered Snowdrop, Primrose, or Violet? the unalloyed delight in returning with this first tribute of approaching spring? How the eyes would sparkle with a peculiar lustre when, in the elasticity of youth, we culled from some seemingly inaccessible spot a rare and favourite gem to enrich our posy, which the gentle meadow could not afford! And who is there whose senses have not been regaled with the rich and refreshing perfume of such a nosegay? Alas! where are those senses and those feelings which conduced so much to the bliss of bygone days? Has the Lily lost its sweetness, the Primrose its fragrance, and the Violet its hue? or, rather, is man, from entering on a field of enterprise and speculation, become so completely overwhelmed in cares for his personal aggrandisement and the accumulation of wealth, as to be estranged from the unmingled charms of a garden, with all its endless variety of pleasures and luxuries? Can man be so dead and insensible to the beauties of nature, so ungrateful to a beneficent Providence? Is there no poetry in his composition, no benevolence in his organization? Has the love of gold rendered all his better feelings callous and obtuse? and has he neither time nor inclination to revert to scenes where the avarice of maturer years found no sympathy? Let us rather attribute the situation of such an one to the miseries of an age out of which we are progressively escaping, when all such narrowed and sordid views must eventually fall a sacrifice to the inroads of science and the consequent enlargement of human happiness. The suburban residences which are already thickly studded around our cities, and are daily becoming more numerous, bid fair to incite other feelings and to cherish better hopes; but, alas! as we approach to examine these spots, our hearts are sickened at the portals. The common-place shrubs, numbering some half-dozen species, which economy has taught the builder to distribute, are alone to be found. Had the owner of such a residence retained but a tenth of his school-boy enthusiasm for flowers, his collection of plants would at least have numbered thousands; and be it remembered every plant has its name, and he would have known it; he would have watched it assuming different characters and clothed in its various garbs, and it would have imbued his mind with interesting associations and numberless pleasing incidents. What thousands of moral lessons he would have been taught amidst recreations which the cynic and the latitudinarian never dream of! Could I but disengage him from his calculations, and invite him from his couch by the fragrance of the Hawthorn or the Rose, to admire the majesty of the Oak or the grandeur of the lofty Pine, I should not despair of calling forth his latent feelings; even though his looks indicated that the freshness of youth was succeeded by maturer years, there would still be in store for him, in this department of natural history, endless sources of the highest order of intellectual gratification, endearing him to his family and his abode.

ON RAISING THE CROCUS FROM SEED.

BY MR. E. L. MOOR, TAUNTON.

TO say that little or nothing has been done in the attempt to improve this old and common spring favourite, by raising new varieties from seed, is perhaps not far from truth. I have therefore ventured to forward the following remarks on raising this pretty "bulb" from seed, in the hope that some may be induced to take the matter in hand.

The seeds of Crocuses are best sown, immediately after being gathered, in light dry earth, that will neither bind, nor retain moisture long: but it is not necessary that it should be rich, as that might encourage a too redundant and fatal humidity. Large pots or pans or small shallow boxes of such soil, with a sufficiency of holes and potsherds at the bottom, for the purpose of draining off with certainty all superfluous moisture, are the best receptacles for these seeds, which should be sown thinly (for almost every one will vegetate), and not covered, at the time of sowing, more than half an inch with the mould.

The most suitable aspect or situation for the seed-boxes, until the autumnal rains set in, is a moderately shady yet unsheltered one; permitting them to receive all the influence of the weather, except such heavy showers as would wash bare the seeds. As soon, however, as the autumnal rains commence, it will be highly advantageous to remove the boxes to a warm aspect, and to protect them from all excessive rains, frosts, and snows, by the occasional shelter of a garden frame; allowing them, nevertheless, the benefit of the full air at other times, but more especially after the seminal leaf (for they have but one, being monocotyledonous plants), eager to commence the career of life, urges its fine setaceous point above the surface of the earth. This occurs sometimes about the end of the year, but oftener in earliest spring. After this, it is quite essential that they should have complete exposure to the air, even in frosty weather, for they are prodigiously hardy with respect to cold; screening them, however, occasionally, with loose straw, from other injurious effects of frost, so as to prevent their being raised out of their beds by its baneful effects; remove all the straw covering again as soon as the frost is over.

In this manner the young Crocuses may be treated until the sun acquires sufficient power to dry the earth in their boxes, so as to require daily waterings; for they must have gentle rose-waterings whenever they are quite dry. It will be then found advantageous to remove them to a cooler but not sheltered situation; and here they may remain until their leaves die down, giving them, as just hinted, at all times, and in every situation, while their leaves are growing, such discretional rose-waterings, when the sun is not shining, as they may reasonably appear to require; but never until the earth they grow in becomes dry, nor any whatever after their leaves begin to look yellow. After this period it is necessary to defend them from all humidity, except dews and gentle rains, until the end of August or beginning of September. From weeds and from worms, from slugs and snails, it is almost needless to observe, they should constantly be kept as clear as possible; and if the surface of the earth in their boxes is occasionally stirred with the point of a knife, or fine piece of stick, it will never fail to be attended with beneficial effects, and invigorate the bulbs; operating, no doubt, as a sort of hoeing, and like that important practice, as the writer of this paper conceives, proving salubrious to vegetables of every denomination, not only by lightening the soil, but by admitting new accesses of atmospheric air towards their roots, and thereby facilitating and stimulating their absorbent inspiration of its oxygen, without a due supply of which all vegetables eventually become feeble.

If, notwithstanding the precaution of thinly sowing the seeds, the plants in any of the seed-boxes should have grown so thickly together as to have incommoded each other, it will be desirable to have such taken up, and replanted immediately further asunder, in fresh earth, and about three quarters of an inch deep. But if they are not too crowded they will require no shifting, this, their first, autumn, but merely about a quarter of an inch of fresh mould sifted over them, previously stirring and cleaning the surface of the old from moss and weeds, and observing not to bury the young bulbs deeper than three quarters of an inch, or an inch at the most. The second season requires exactly the same management as the first. But as soon as their second year's foliage has passed away, the roots should all be taken up, and replanted again the same or following day in fresh earth, of the same kind as before, about an inch deep, as much apart, and treated as above. Nor does the third season demand any alteration in their management, sifting over them in autumn half an inch of fresh earth.

The following spring, if they have been duly attended to, most of them will show flowers (a few perhaps having done so the season before) in the midst of their fourth crop of leaves, fully rewarding with the cheering colours of their new faces all the preceding assiduity and care.

The seedling plants, after they have flowered, may to all intents and purposes be considered and treated as old ones, and, after their leaves have passed once more away, may be taken up, and replanted in the open borders of the garden for good, at about two inches apart, and as many deep; they may be placed either in groups, patches, edgings, or full beds, and will flower strongly the ensuing spring.

EARLY BLOOMING ACACIAS.

BY A LADY AMATEUR.

MANY plants, of which the natural season of blossoming under glass is in the winter or early spring months, acquire additional value from that circumstance, because their intrinsic beauty is then heightened by contrast with the "desolation that reigns without." Many of the New Holland Acacias possess this desirable property, which in some species is combined with exceeding beauty, as well as gracefulness of habit; consequently there are no plants better adapted for ornamenting a conservatory, where they can be allowed sufficient room to display unconfined their elegant growth. One of the finest species for this purpose is *Acacia dealbata*, of which there is a splendid specimen, now in the height of its beauty, in my own conservatory. I have seldom seen a plant of any kind equal in beauty to this, its wide-spreading branches being completely covered with a garment of green and gold, or more strictly speaking, with green and deep lemon colour; the latter colour greatly predominates, however, for the flowers are so numerous that they almost hide the pretty bipinnatifid leaves. This tree roots into a border beneath the floor of the house, and its stem was originally trained to one of the pillars that bear up the roof; but the stem is now larger than its former support, and the branches extend in different directions to a distance of several yards. It has been planted about eight years. A fine plant of *Acacia vestita* grows against another of the pillars. This, from its profuse flowering and pendulous habit, is a very handsome species, and requires much less room than *dealbata*, which precedes *vestita* in flowering by nearly a fortnight. To these might be added other desirable kinds, as *Acacia armata*, a very free-flowering species, with flowers like golden balls; *A. Lophanta*, with long spikes of whitish flowers; *A. verticillata*, with whorls of leaves like spines; *A. melonoxylon*, the Black Wattle of the Australians, with very curious leaves, the footstalks of which look like leaves, with the real leaves hanging to the points of them; and *A. pubescens*, a very elegant species, with drooping branches and racemes of ball-like flowers, borne in the greatest profusion. Indeed, all the species of this genus are highly interesting, and most of them elegant ornaments for the greenhouse or conservatory, deserving of general cultivation.

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DESCRIPTIVE REMARKS ON THE BEST HOLLYHOCKS.

BY THE FOREMAN OF A LONDON NURSERY.

THE following list contains such varieties of the Hollyhock as I know to be deserving of cultivation, and having made my descriptions carefully from the flowers when in their best condition, at various nurseries and shows during the past year, they may be fully relied on:—*Beauty of Cheshunt* (Paul), a noble flower, pale rosy red, spike close, and habit very free. *Beauty of Walden* (Chater), clear rosy pink, a fine, large, and full flower. *Criterion* (Bircham), base of the petals purple, shading off to lighter, a full flower with broad guard petals, distinct in character. *Empress* (Chater), a fine buff-coloured flower. *Eugenie* (Chater), saffron-yellow, delicately shaded, compact and full. *Eva* (Roake), a beautiful flower, delicate peach colour, centre fine and round, large. *Golconda* (Chater), rosy orange, full. *Hon. Mrs. Ashley* (Roake), light rosy carmine, flowers large, and spike very compact. *Ignea* (Chater), salmon-scarlet, large, full, and very double. *Izaak Walton* (Holmes), slaty grey, shaded, very compact, a nice flower. *Jabez Chater* (Chater), salmon-red, a noble flower, very full. *Lady Middleton* (Chater), rosy red, flowers full and large, spike extra. *Lemonade* (Bircham), the base of the petals purple, shading off to sulphur-yellow, and sometimes tinged at the edge with chocolate-brown, a distinct and fine variety. *Lizzy*

Improved (Paul), delicate fleshy peach, fine form, and very double. *Lizzy Roberts* (Chater), very pure white, excellent form. *Louis Napoleon* (Paul), veined lilac, base of the petals maroon, fine and full. *Mr. Joshua Clark* (Chater), extra fine dark crimson-red. *Ochroleuca* (Chater), pale straw colour, a full flower of large size. *Omar Pacha* (Bircham), straw colour, lower parts of the petals chocolate-brown, a slight purple veining is often apparent, distinct and fine. *Primrose Perfection* (Paul), light primrose-yellow, form good, and spike very large. *Purple Perfection* (Bircham), a distinct light purple, form good, and substance stout. *Queen of Whites* (Paul), a full, fine, and stout white flower of great purity, spikes large. *Sir Charles Napier* (Bircham), deep velvety maroon, thick glossy petals, fine form. *Sir William Middleton* (Chater), salmon-buff, large, and very full. *Solfaterre Improved* (Fellowes), clear golden yellow, immense spikes of excellently formed flowers. *Sulphur Queen Improved* (Chater), creamy yellow, flowers very full, and of good size. *Walden Masterpiece* (Chater), lemon, tinged with pink, form and substance excellent. *Yellow Model* (Bircham), primrose or pale sulphur, with chocolate-brown base, good form.

Some few of the varieties described above are new, and consequently high in price, although the majority are to be had at a moderate rate, and all are such as will not disappoint the purchaser.

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THE CINERARIA.

BY MR. WILLIAM ROGERS.

LET me urge a few words in favour of the Cineraria for decorating the conservatory during the whole of the winter and spring. Taking into consideration the great range and variety of colour, abundance of bloom, dwarf, compact, and neat habit of growth, and easy management, there are but few things better adapted to the purpose. To ensure good seed I always save my own from the best varieties, and sow it early in March. As soon as the young plants are large enough to prick off, I insert about a dozen in a pot of forty-eight size, by which plan they occupy but little room, and become good strong plants. By the middle of May I pot them off into sixties, and place them in a cold-pit for a fortnight or three weeks, when they are shifted as the pots become filled and set out under a north wall, where they are screened from the direct sun, which they do not well bear. I keep repotting them as often as they require it in the course of the summer, and apply liquid manure occasionally. When the middle of September has arrived, I return them to the cold-pit as a protection from too damp and cold an atmosphere, and in a month remove them to the greenhouse or conservatory, at which time many of the plants will be coming into flower and continue in bloom a length of time. A succession for spring months may be secured by additional sowings from April to June.

To have specimen plants of the superior kinds to flower in May, my practice is as follows. When the bloom is past, I cut them down and put them in a shady place, where they will throw out plenty of young stock, which is taken off when of sufficient size, and potted into sixty-sized pots, in leaf-mould and sand; removed to a frame or pit, where they may obtain the benefit of a little bottom heat, they soon strike, but must be kept shaded. I pot them off into forty-eights next, and replace them in the frame till they are sufficiently established, after which I gradually harden them off, repotting them, and using manure-water as they require it. In all future shiftings, however, I choose a different compost to that above stated, taking equal parts of rich loam, leaf-mould, and decomposed hotbed manure, with a little coarse sand. Plenty of drainage is necessary to the health of the plants. If I perceive any likelihood of frost I transfer the plants to the greenhouse, but give them no more assistance from fire-heat than is just sufficient to keep frost from them. Towards the commencement of February I give them a final shift into twenty-four-sized pots. They will make good progress if assisted with liquid manure, for if suffered to become dry they soon suffer.

The following descriptive list of some very fine varieties may serve the amateur to make a selection from.

ALMA (Rogers), fine white, plum-coloured tip.
ATTRACTION (Dobson), fine, violet-crimson.
CONSTELLATION (Henderson), clear white, deep blue edge, very fine.
EUPATORIA (Rogers), clear blue.
FASCINATION, dark blue, shaded, white around the disk.
GARLAND (Henderson), clear white and rosy purple, fine.
LADY CAMOYS (Sutton), white, with an intense blue edge and disk.
LORD STAMFORD (Henderson), white, with a fine edge of sky-blue.
MAGNUM BONUM (Turner), bright rosy purple, with a white ring round a black centre, large and good.
MAJOR DOMO (Henderson), puce, shaded with purple and white; large, and an early flower.
MR. SIDNEY HERBERT (Henderson), shaded purple.
NOVELTY (Henderson), damson-purple, with a large light disk; dwarf, and very showy.
OPTIMA (Boussie), white, with a broad dark blue edge and disk; fine form.
OPTIMA (Hopwood), white, with a broad crimson edge and disk; early, dwarf and showy.
PRINCE ARTHUR (Henderson), scarlet-crimson, broad petals, and brilliant variety.
PRINCE OF PRUSSIA (Henderson), bright azure-blue, with a small white circle around the disk.
PURPLE STANDARD (Turner), bright purple, with a white circle around the disk.
ROSE OF ENGLAND (Boussie), white, margined with violet-purple, dark disk and fine form.

REMARKS ON THE CULTIVATION OF GLOXINIA MACULATA.

BY MR. ANDREW WELLS.

ALTHOUGH this is an old species and very seldom seen in collections, it is, when well grown, one of the handsomest and most distinct of the genus. It is often kept for years without blooming, on account of improper treatment; if, however, the following remarks are carried out it may be flowered every year to perfection. Early in March, pot off into four-inch pots, in boggy peat and a little sand, observing to put only one plant in a pot, and should any suckers arise, they should immediately be removed. As soon as they show signs of vegetating, place them in a moderate bottom heat, and water freely. When the pot is filled with fibres shift them into two sizes larger, and continue with a free supply of water for about ten days or a fortnight, then they may be placed in pans, kept constantly filled with water, still clearing off the suckers, should any make their appearance. By this mode of treatment they will produce spikes of flowers from two to three feet high. When they have done flowering they may be taken out of the pans and placed with other plants in the stove, not giving more water than is necessary to keep them in health until the flower-stems begin to decay, when they should be placed on the dry shelves till the first week in January, at which time commence watering sparingly until they again make their appearance, when they may be treated as above.

ON RAISING AURICULAS FROM SEED.

BY J. T., WAKEFIELD.

I HAVE been a cultivator of Auriculas for many years, and have raised a great number from seed, amongst which are some excellent kinds. The compost I use consists of equal parts of fresh loam, decayed leaves, and well-rotted dung (cow-dung is preferable), and about one sixth of river-sand. This compost is well mixed, and frequently turned over, for three months previous to using. The pans I use for containing the soil are made of the same material of which garden pots are usually made, the shape is the same as a wash-hand basin, without any hole in the bottom. Before the compost is used for sowing I fill the basin, and place it in the oven until it is so hot that I cannot bear to insert my finger in it; this destroys the seeds of any weeds, or the eggs of insects, which may be deposited in it, After taking it out of the oven, I spread the soil to cool; when quite cold, I fill the basin to about an inch and a half from the top, around the sides, but am careful to have the soil as high in the middle as the edges of the basin, so that it gradually rises from the sides to the centre of each. The soil is then pressed by a small board, to make the surface smooth and even. The seed is sown in a regular manner, and covered with very fine sifted compost, about the depth of one-sixteenth of an inch, after which it is again pressed down even. This being done, I take a soft brush, dip it in water, and give it a shake, to throw off heavy drops; I then shake it over the soil till it is well moistened, after which I water close round the side of the basin, so as to keep the compost wet, for although Auricula plants, when full grown, will not endure much wet, yet the soil requires to be kept very moist, in order to get the seed to vegetate. The time I usually sow my seed is from the first to the middle of January. When sown, I cover the basin over with a bell-glass, or a large flat piece of glass, and place it either in a window with a south aspect, or in the front of a greenhouse. About the beginning of March the plants are generally springing up; in about a fortnight afterwards the strongest are transplanted into fresh compost, as before. In taking up the plants, I use a small pair of tweezers, made of ivory, with very narrow points, so as to take up each plant by the seed-leaf; likewise a piece of ivory, not more than one-eighth of an inch broad, for the purpose of making a small cleft in the soil to admit the root of the plant, which when placed, the soil is carefully closed up. I plant them about an inch apart, and water them well afterwards, as before directed. In about five or six weeks after transplanting, they are again taken up, and replanted in basins, at a greater distance from plant to plant. I then venture to water them, through the medium of a watering can, with a finely perforated rose. At the end of a few weeks, I again remove the plants into other basins, placing them at a greater distance, and in August place each one in a pot, of the size I use for regular blooming plants; care is taken that they are well drained.

ON GROWING CLERODENDRON SPLENDENS.

BY CLERICUS.

IF properly managed this plant makes a fine object in the stove, and to obtain handsome, well-formed specimens is by no means difficult. The large and brilliant trusses of scarlet blossoms seen amongst its dark shining foliage render this plant a general favourite with all who have the pleasure of viewing a well-grown plant in full flower. It may be increased by grafting on the stronger-growing kinds, or by cuttings. For the latter it is best to select short-jointed shoots of young wood, rather firm, however, towards the lower joint, which will strike readily under a hand-glass, in sandy loam, if plunged in a moderate bottom heat. When rooted, pot them off into small pots, using equal proportions of leaf-mould, sandy peat, and turfy loam, and place them in a warm pit or stove, with a moist atmosphere, and somewhat shady; bottom heat is beneficial, but not absolutely requisite. After they become established they will require a little air and more light. In all future shifts a small proportion of cow-dung, well rotted, may be mixed with the compost. By the month of September they will, with due attention, be nice little specimens just coming into bloom, and continue in flower through the early winter months; for winter decoration in the stove few plants are more deserving of culture. For grafting, the *Clerodendron splendens*, *C. Kæmpferi*, or *odoratum*, are suitable for working on, being vigorous kinds; short-jointed wood, well ripened, is best suited for this purpose, and each pair of eyes or leaves will make a graft. If done early in spring they will make nice plants in the course of even a single season.

GYNERIUM ARGENTEUM.

PAMPAS GRASS.—This noble plant will probably form one of the most useful objects for decorating the lawn or flower garden that has been introduced for many years. In stature it rivals the Bamboo, being described as growing in its native plains several times as high as a man. The leaves are hard and wiry, serrated at the edge, not half an inch broad at the widest part, of a dull greyish green, much paler below. They are edged by sharp points of teeth, strong and horny. The flowers appear in panicles, from a foot and a half to near three feet in length, resembling those of the common reed, but of a silvery whiteness, owing to their being covered with long colourless hairs, and themselves consisting of colourless membranous glumes and scales. It has proved itself to be quite hardy, having stood the past very severe winters. It has had the foliage bleached and killed by the frost, but the roots have remained uninjured, and have pushed afresh and recovered their wonted vigour. Such, at least, has happened in the Society's garden. Before it was hurt by the intense frost, to which it was fully exposed without any protection, in 1855, it had acquired the following dimensions:—Height, from the ground to the curve of leaves, 7 feet; height to the summit of the plume of flowers, 11 feet; diameter of the tussock, 9 feet; length of one of the leaves, 8 feet; number of flower-plumes, 17; length of flower-plumes, 2 feet. Let the reader conceive such to be the magnitude of one single individual of a reedy grass, whose grey, hard, narrow leaves curve most gracefully from the centre to the circumference, forming a thin but huge tuft; add to this many slender flower-stems darting into the air, and gracefully poising on their summits a white airy mass of light scales, whose polished surface can only be rivalled by the delicate work of the silversmith; place this a little above the eye, among rocky ground; let it be well backed up by some dark foliage. and a faint idea may be formed of the general appearance of the Pampas Grass. It may be propagated by dividing pieces from the side of a large tussock, yet the most ready way is by seed, which should be raised in the following manner:—Sow the seeds as soon as gathered, with little or no covering, in pans or pots, well drained, and filled with a mixture of light sandy loam and peat in equal parts, and keep the soil rather dry after sowing for a few days, then water freely. Place the pans or pots in a warm frame or pit until the young plants are fairly up, afterwards place them where they will be cooler and more exposed, in a pit or greenhouse, but not in a drying situation. When the plants are large enough, pot them singly in small pots, giving a liberal supply of water afterwards, at all times. In no case whatever must the young plants be allowed to get dry at the roots, from the time they first vegetate until they have been planted out. (*Hort. Soc. Journ.*)

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NEW AND SELECT GARDEN HYBRIDS.

FUCHSIA, ETOILE DU NORD—Tube and sepals crimson-scarlet, the latter stout and well reflexed; corolla very dark violet-maroon; considered to be the deepest coloured of any Fuchsia yet out.

12. **Fuchsia, Star of the Night.**—Tube and sepals scarlet, wellreflexed; corolla large and open, rosy scarlet, shaded off towards the margin to a plum colour. The first season, this variety produced its flowers striped with rose colour, but since has only partially exhibited this peculiarity.

13. **Fuchsia, Fairest of the Fair.**—Tube and sepals white, the latter being of large size, and tolerably well reflexed; corolla large and showy violet-crimson. A fine showy flower.

14. **Fuchsia, Tristram Shandy.**—Tube and sepals rosy red, stiff, and the latter thrown back acutely; corolla pale lilac, open, and of good size. A free-growing variety. The novel colour of the corolla renders it a very distinct flower.

15. **Gloxinia, Tarragona** (Jæger).—Of the erect class. Interior of the tube crimson, fading off at the base to white, and dotted in that place with small crimson spots, lip pure white; a fine large flower.

16. **Gloxinia, Sir Hugo** (Jæger).—One of the older class, having intense violet-purple flowers, with a faint light marking on the lower limb. This will prove to be one of the finest kinds of this colour yet produced.

17. **Verbena, Marmion** (Breeze).—This variety is of a colour hitherto scarcely seen in the Verbena, an intense crimson-maroon; it has a large light eye, and produces fine noble trusses.

18. Bouvardia, Hogarth (Parsons).—Habit strong and robust, flowers produced in a large truss, bright Indian red; the foliage remarkably fine for this genus, some of the leaves measuring from four to five inches in length, by two broad. The present as well as the following hybrid Bouvardias were raised between *B. longiflora* (white) and *B. leiantha* (scarlet). They resemble the latter in habit and foliage, whilst partaking more of the former in appearance of flowers.

19. Bouvardia, Rosalinda (Parsons).—Fine compact trusses of bright salmon flowers; a beautiful variety, of good habit and large blossoms.

20. Bouvardia, Oriana (Parsons).—Salmony scarlet flowers, large and fine.

21. Bouvardia, Laura (Parsons).—Delicate pink or flesh colour, fine trusses, of spreading habit, and broad pointed foliage.

22. Geranium, Culford Beauty (Grieves).—One of the same class as the well-known Flower of the Day; it is of very robust habit, with large foliage, but instead of a white margin, the leaves have a broad edging of distinct clear sulphur colour. The flowers are of a brilliant orange-scarlet, borne in large trusses.

23. Calceolaria Montecuculli (Sanders).—A shrubby or bedding variety; the flowers, although possessing no improvement in form over old varieties, are of striking colours, namely, dark crimson, with a large golden yellow cap.

24. Delphinium Montmorency.—Trusses of bloom very long, light clear blue, better in this respect than Hendersoni, form and habit good.

NOTES ON NEW AND SELECT PLANTS.

STOKESIA CYANEA. Nat. Ord. *Compositæ.*—A very attractive plant, bearing flowers resembling in some measure those of a China Aster, of a fine blue, with pale yellow centre. Although introduced to Kew Gardens nearly a century ago, it is little known, and is one of the rarest plants, even in its native country, the United States, where it grows in Carolina, Georgia, and Louisiana. Named in honour of Dr. Stokes, of Dublin. (*Bot. Mag.*, 4966.)

34. Lobelia Texensis. Nat. Ord. *Lobeliaceæ.*—An old but interesting plant, from Texas; the date of its introduction is, however, unknown. It is a very free-blooming species, bearing bright red flowers, of rather small size, and has by some been confounded with *L. cardinalis.* (*Bot. Mag.*, 4964.)

35. Ansellia Africana. Nat. Ord. *Orchidaceæ.*—From Fernando Po, the opposite coast of Africa, and Natal. It is a fine Orchid, though by no means new, and attains a considerable size. The flowers are numerous, pale green, blotched with dull purple, borne in abundance on long dependent racemes. Produced in the stove in January. (*Bot. Mag.*, 4965.)

36. **PHYTOLACCA ICOSANDRA.** Nat. Ord. *Phytolacceæ.* Syn. *P. Mexicana.*—A plant of no particular beauty, either as regards leaf or flower, but worthy of attention from its pretty, deep purple-black berries, which are about as large as a small pea, at first green, but afterwards changing almost to blackness, and very glossy, borne in long and graceful racemes. It fruits well in a warm greenhouse in the summer months, at which season it bears flowers and berries very abundantly. The leaves are three or four inches long, elliptical ovate, rather fleshy; the branches are somewhat tinged with purple; flowers small, pale green, or yellowish. A native of Mexico. (*Bot. Mag.*, 4967.)

36. **RHODODENDRON CAMPYLOCARPUM.** Nat. Ord. *Ericeæ.*—Another handsome species from Sikkim-Himalaya, in the collection of Messrs. Standish and Noble. It inhabits rocky valleys at an elevation of from 11,000 to 14,000 feet above the sea-level, and is very abundant in the above-named district. Growing naturally in so elevated a position, it might be expected to blossom in the open air of our climate, but being an early flowerer, it will not come to perfection without the protection of a cool greenhouse or frame. In its native habitat it is a bush of about six feet high, with foliage of a light cheerful green, and flowers of a delicate pale yellow or sulphur, about two inches across the mouth, exhaling a peculiar, delicate odour; they are borne in large heads. The leaves are from two to three inches and upwards in length, and about two in breadth, resembling those of *R. Thomsoni.* Dr. Hooker says this plant "may be regarded as the most charming of the Sikkim Rhododendrons." (*Bot. Mag.*, 4968.)

38. **TAINIA BARBATA.** Nat. Ord. *Orchidaceæ.*—A curious Orchid, growing on trees of *Gordonia*, among the Khasia hills of India. The flowers are produced in long loose panicles of two feet or more in length, yellowish, streaked with red, and of no great beauty; the sepals are almost erect, and the petals reflexed. In Messrs. Loddige's collection, and also introduced by Mr. Lobb to Mr. Veitch's nursery at Chelsea. (*Gard. Chron.*, 192.)

39. **BERBERIS PARVIFLORA.** Nat. Ord. *Berberideæ.*—This is a small hardy evergreen, presented to the Horticultural Society by Messrs. Lee, of the Hammersmith Nursery, and noticed in the Journal of the Society. The habit is neat, flowers deep yellow, in small loose panicles. Leaves an inch and a half long, of a bright glaucous green. Native district unknown. (*Hort. Soc. Journ.*)

40. **PLATYCODON GRANDIFLORUM,** *var.* **SEMI-PLENA.** Nat. Ord. *Campanulaceæ.*—A variety, with semi-double white flowers, was discovered by Mr. Fortune in cultivation at Shanghai, whence it was introduced by that gentleman to our gardens; the flowers are composed of two rows of petals, pure white, resembling a star in form. It will most likely prove hardy, or require no farther protection than that afforded by a cool frame or pit. It strikes readily, in almost any soil. (*Hort. Soc. Journ.*)

41. Oncidium bifrons. Nat. Ord. *Orchidaceæ.*—Of no great beauty, yet singular structure. This Oncidium will not attract much attention; the flowers are small, yellow, and sparingly produced. In the collection of Messrs. Loddige, who received it from Mexico. (*Gard. Chron.*)

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FLORICULTURAL OPERATIONS FOR MARCH.

IN THE FLOWER GARDEN.

General Operations.—Many operations directed for last month may yet be pursued. Let every possible effort be made to have the soil in a condition to receive seed, etc. *Grass* mixed with clover seeds may be sown, to renovate all bare and patchy places; keep the lawn and verges in trim order, and roll it occasionally; should worms appear, apply lime-water. *Gravel,* keep clean, and relay where necessary. *Hoeing* should be performed with caution; many things just coming out of the ground are liable to injury, unless this operation be performed with much care. *Layers and rooted cuttings of Shrubs,* etc., should be transplanted as soon as they are found sufficiently rooted. *Seeds* of hardy annuals may be put in whenever the weather permits. *Slugs* require looking after, as they begin to show themselves in increasing numbers. *Surface* of beds and borders should be kept neat, and well stirred among shrubs and herbaceous plants. *Turf* may be laid down. *Weeds,* keep down by constant attention to neatness.

Cultural Department.—*Alpines,* the season has arrived for repotting, which must be done with the compost suitable for each species; many will require dividing to increase stock, which should be done with care. It will be necessary to place them in a close pit for a short time to get them well established, they may then be set on ashes on a sheltered north border; water may be more freely given. *Annuals,* hardy kinds may be sown, and autumnal-sown plants transplanted. *Biennials and Perennials,* sow seeds of, and plant or divide the roots, if mild. *Calceolarias,* such as have been in the cutting-pots through the winter may be planted out about the middle of the month, three or four inches apart, on south borders under a wall, and protected by mats at night. *Carnations and Picotees,* early in the month is the time for potting; the soil should be strong rich loam, with a portion of old cow-dung and coarse sand; examine it well, to see there are no wire-worms in it. The pots should be well drained, and after potting put them in an airy place of the garden, under a framework of hoops, that they may have mats thrown over them in case of frosty nights, cold drying wind, or heavy rain. *Evergreens,* give liquid manure to those transplanted last autumn. *Hollyhocks* may be planted at the end of the month for a succession of bloom. *Hyacinths* will be pushing their flower-stems, sticks may be put to those most forward; stir the beds and lighten the soil round the plants. *Lilium lancifolium* may now be, if desired, turned out into the open ground; those in pots will require to be repotted as soon as they begin to push; let the pots be well drained with crocks and charcoal, using a compost of strong friable loam and peat in equal proportions, adding a little coarse river-sand. *Pansies* if not previously top-dressed, it should be done without delay. Seedlings wintered in pans may now be planted out. Look well after slugs, which are very destructive as the plants begin to grow. Still protect the beds from cutting winds. *Pinks,* if beds were not planted in autumn, let it be done early this month, being careful to keep the balls entire; press the soil firmly round them, and protect from winds. Seed may be sown about the middle of this month, in light vegetable mould; place the pans or pots in a westerly aspect, and cover with a sheet of glass, to prevent the soil becoming too dry. *Pæonies, herbaceous,* if increase be required, it may be easily effected in the following manner. Over a patch or tuft, place a box or pot without a bottom, about twelve or fifteen inches high, and fill it up with well-worked vegetable mould; the stems have then to make their way through the earth before they can produce any flowers, and will throw out tubers, which may be cut off in the autumn or following spring. *Polyanthuses* in beds should have the surface-soil stirred up, and an addition of fresh compost, consisting of old dry cow-dung and rich loam in equal parts, firmly pressing it around the plants; liquid manure may be given once or twice a week, and soft water on other occasions. *Ranunculuses*, protect from frost by covering the beds with mats or dry fern; look over the roots planted last month. *Rockets, double*, turn out of pots into borders; good loamy soil suits them best. *Roses*, during the first week of the month, the shoots of the wild stock may be trimmed off to within one bud of that which has been inserted; the object is to leave a wild bud, to draw up the sap to that which has been budded on; the former may be left until it has attained two or three pairs of leaves, when it is to be stopped. By this time the other will begin to push well, and when it has attained the length of four to six inches, cut off the sap-shoot at the base. Any portion of the stem of the stock remaining above the highest budded branch should be cut off. Early in the month pruning should be done; leave a couple of buds on each shoot of last year's growth. Whenever a new shoot springs up at the base of an old branch, it is better to cut away the old wood close to the base, leaving the young shoot to supply its place. *Sweet Briar*, if sown in a single row, makes a good edge on poor soils, where other plants would not succeed. *Tigridias*, plant in beds about four inches apart. *Tulips*, it will be necessary to protect the beds with a covering of canvas in unseasonable weather, so as to prevent rain or snow getting among the leaves, which causes the bulbs to rot; still stir the surface-soil, to keep it sweet.

IN THE GREENHOUSE, COLD-PIT, AND FRAME.

General Operations.—*Air*, admit in the greenhouse whenever the temperature outside is over thirty-five degrees; should the weather be foggy and damp a slight fire s of advantage, in keeping the atmosphere of the house dry. *Climbers* may be pruned and tied up; keep in mind whether flowers are produced on the old or young wood when this operation is performed. Such as are on trellises will require constant attention and training. *Fires* will seldom be required, unless the weather be very severe. *Hotbeds* may be got ready for sowing greenhouse and tender annuals, or striking cuttings. It will also be useful for grafting and inarching Camellias, Corræas, etc., which succeed best in such a situation. *Insects*, look after and destroy. *Leaves and stems* may be sponged with a little soap and water, to cleanse them and promote health; syringe afterwards with clean water. *Syringe* with tepid water on bright days, this conduces to health. *Water*, a slightly moist atmosphere may be kept during drying winds, which frequently prevail this month. As the spring is fast approaching, attention should be given to have everything in good order in this department.

Cultural Department in the Cold-pit and Frame.—*Antirrhinums*, take off cuttings of any choice sorts, strike in silver sand on a moderate hotbed. *Annuals, tender.* such as German Asters, Cobœas, Stocks, etc., towards the middle of the month sow on a hotbed, and towards the end give air, to prevent their being drawn up. *Auriculas* will require constant attention with regard to air and water; give all air you can, to prevent weakly drawn-up flower-stems; they require but little manure-water, and this should be given at noon, so that it may be drained away before the frosts of night come on. Thin out the pips, so as to have five, seven, or nine on a stem. If the sun comes out strongly towards the end of the month, shading will be necessary. Examine the offsets, and give water with judgment. Transplant seedlings while in the seed-leaf, especially if thickly sown. *Carnations and Picotees*, attend to watering all those in frames. *Chrysanthemums*, pot off those struck last month. *Dahlias*, the plants struck early, and in small sixty-sixed pots, will now probably require repotting into large sixties, and a sufficiency of air must be given on all mild days, to keep the plants robust. Seedlings may be potted off, kept cool and robust. *Fuchsias*, cuttings may be put in and plunged in a gentle hotbed. *Gladioli*, tender kinds may be planted in pots and placed in a frame; when rooted they should be removed to a cool pit, and allowed all air possible. Seed saved last season should be thinly sown in pans of light soil, as a mixture of peat, leaf-mould, and sandy loam; cover half an inch deep and place in a close frame, where it will speedily vegetate. *Ixias, Sparaxises, etc.*, in frames, take off the lights during the day in fine weather, replacing them at night. *Mimuluses* in pots, take off cuttings and plant them singly in sixties, the best compost for them is made of two-thirds loam and one-third of leaf-mould and sand; plunge in bottom heat; when well rooted, place them in the cold-pit. *Polyanthuses* in pots, top-dress them now, removing the loose soil from the top, replacing it with rich loam and old dry cow-dung in equal parts, firmly pressing it around the plants. They should be placed in a frame facing the south or south-east. Guard against the attacks of green fly, by fumigation with tobacco. *Primroses, Chinese*, sow seed in a light rich soil, in flat pans, and place in a hotbed frame; when up allow the young plants plenty of air. *Salvia patens*, to propagate for bedding purposes, place the roots in gentle moist heat, in light soil. When the young shoots are two or three inches high, take up the roots and divide them; pot off and place in heat for a few days, and then harden off. *Stocks, intermediate*, when they show flower, select the double from the single, planting the latter, to save seed from, by themselves. Repot the double ones into twenty-fours, and allow them to stand in the frame till the end of the month. *Tuberoses* in pots, plant the bulbs two inches deep in sandy loam and cow-dung, and plunge them in a gentle hotbed. Be careful not to give much water till they come up, and admit air gradually. *Verbenas*, cuttings may be taken and those already rooted should be potted in small sixties in light rich soil.

CULTURAL DEPARTMENT IN THE GREENHOUSE.—*Azaleas*, keep down green fly and thrip; water liberally those in bloom, and to retard such as are intended for late flowering; place them in a shady cool part of the house. *Calceolarias*, water more freely, and shift for succession; such as are flowering may have a little manure-water. *Camellias*, any pruning necessary may now be performed; few plants succeed better under judicious pruning than the Camellia. *Cinerarias* may have manure-water occasionally, and should be constantly looked to for preventing the ravages of green fly. *Cyclamens*, on the flowers appearing, remove them where they may have plenty of sun and air; they should be abundantly watered with tepid water in the mornings. *Diosmas, etc.*, should have air when making their growth and when flowering, after which they will bear pruning to advantage; cuttings may be put in. *Epacrises*, give water more freely; stock plants may now be shifted, and shoots stopped in where too rambling; give air. *Ericas*, look them over and support with small sticks, arranging each branch, as the spring-blooming varieties are becoming advanced; let them have abundant air when not frosty, and some sun. Water freely if well drained, and shift such as require it. *Fuchsias*, seedlings may be potted off into small pots, and shifted whenever the roots appear at the side of the ball; continue last month's treatment. *Habrothamnus elegans*, attend to training. *Liliums*, water more freely, and place in a light airy situation. *Mitraria coccinea* and *Cantuas*, propagate a stock of each from the spring growth, which will be nice little plants by the end of May. *Pelargoniums*, stop back plants intended for bloom in July; give air, except cold winds prevail; give sufficient water to moisten the whole ball whenever required; keep down the green fly. *Pomegranates*, this is the best time to propagate by layers; select some of the young branches, and layer them the usual way without cutting. *Primroses, Chinese*, still attend to as last month. *Roses* in pots should have plenty of air in favourable weather; such as are for exhibition or a display in June may be pruned the middle of this month; look after insects. *Scarlet Geraniums*, shift for specimens; a little bottom heat will be an advantage.

IN THE STOVE.

GENERAL OPERATIONS.—*Air*, admit in mild weather. *Baskets*, ornamental ones, for suspending plants in, may be got ready, and such things as Achimenes, Æschynanthuses, and Lycopods may be planted in them, either mixed or separate, which make a very delightful appearance in the house. *Cuttings*, put in and pot off such of last month's as are rooted. *Insects*, keep a watchful eye for these pests. *Potting*, spring potting should be finished by the middle of the month. *Syringe* each morning and evening, water the paths when the sun is out. Those plants which make quick growth will require much water. The temperature of the stove may range as high as seventy degrees by day, and sixty degrees at night. *Winter-blooming* stove plants, cut in and place in a cooler situation. Attend to neatness everywhere, removing decayed foliage and flowers.

Cultural Department.—*Achimenes* and *Gesnerias*, pot for succession; these plants require a more liberal supply of water as they grow, and attention to repotting. *Amaryllis*, repot and place in heat. *Aphelandras*, repot and tie up. *Clerodendrons*, cut down early in the month and start them, shaking off all the old soil. *Echites* and *Ipomœas* will require attention to trimming and training. *Gloriosa superba*, start in a brisk bottom heat. *Gloxinias*, towards the end of the month prepare a succession. *Ixoras*, repot, stop and tie out. *Schubertias*, place in bottom heat. *Succulents*, attend to watering, but be careful they do not have too much.

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QUESTIONS, ANSWERS, AND REMARKS.

Passiflora Kermisina.—I should feel very much obliged to the Editor of the *Floricultural Cabinet*, or any of his correspondents, if they would inform me if this plant will succeed well in a conservatory.—*J. P. Knox*. [About the early part of May, turn out a strong plant into the border of the conservatory, which should be composed of good loam and peat, in nearly equal proportions, with a small quantity of sand. In this the plant will grow vigorously, and flower profusely during the summer and autumn months. In such a situation, however, it seldom or never survives the winter, nor will it in any common greenhouse or conservatory; but if you are fortunate enough to possess a stove, you may very easily have a strong plant to turn out into the conservatory every spring, which will well repay all trouble. Cuttings of the ripened wood, taken off any time during the summer and autumn, three or four joints long, planted in sand or sandy mould, and plunged in heat in the propagating house, will root with the greatest freedom, after which they should be potted off, in soil composed of nearly equal parts peat and loam, made quite sandy, and kept in the stove during winter, and planted out in the conservatory early in spring; or the old plant may be taken up late in the autumn, after it loses its leaves, the shoots cut back, and potted into as small a pot as possible, and kept in a cool part of the stove, and turned out early in spring.—Ed.]

The Pomegranate.—A Subscriber complains he cannot bloom the Pomegranate against a west-aspected wall. [It blooms and fruits well treated, as follows. A dry substratum; if not so naturally, it must be formed by pieces of stone, brickbats, etc. A light but rich loam. In pruning, leave the new shoots (twiggy ones) as numerous as is requisite, as it is from them the bloom is produced. It must be trained against a south-aspected wall, and if sheltered from wind on east or west all the better.—Ed.]

Delphiniums.—Wishing to make a bed of Delphiniums, I shall feel obliged by a list describing some of the most distinct and approved varieties; should you be able to afford space for this in an early number of the *Cabinet* I shall feel much indebted.—*W. Alfeat*. [In answer to our respected correspondent we recommend the following:—Azureum flore pleno, very fine, light azure-blue; Barlowi, intense violet-blue; Belladonna, large, pale lavender-blue; Bicolor, deep blue, white centre; Cardinale, light scarlet, very distinct; Conspicuum, a very large flower, blue, with a white eye; Elatum flore pleno, rich blue; Grandiflorum maximum, intense blue; Hendersoni, large flower, rich ultramarine blue, small white eye, very dwarf; Magnificum, large and fine, rich blue, with a small white eye; Mesoleucum, blue, with pure white centre; Mooreanum, deep blue, small, and very double; Pulchrum, fine lavender-blue; Sinense, light pale blue; Sinense alba, white; Triste, brown-black, a very distinct large flower; Wheeleri, a tall grower, bearing close spikes of clear blue.—Ed.]

Roses for Pot Culture.—A descriptive list of a few of the best Roses for pot culture, fit for exhibition, will be very acceptable to an old reader of the *Cabinet*, who wishes also to know whether it is preferable to have the plants on their own roots. A reply in an early number is requested.—*An Admirer of the Rose*. [We would recommend the purchase of nice young plants on their own roots. Suckers are thus avoided, or when a strong shoot pushes from the roots, it may become useful in filling up any gap occasioned by the removal of older wood, past its best. The following are a choice selection, and are all good pot Roses. The Tea kinds are amongst the easiest to grow, and are also highly perfumed; but with due attention all the following will amply repay the little extra attention they may require.—Ed.]

HYBRID PERPETUAL.

Aubernon, bright rose, changes to carmine, large and full.
Baronne Prevost, superb, large, light pink.
Docteur Marx, brilliant carmine, a vivid-coloured variety.
Duchess of Sutherland, pale rose, a splendid, large, and full flower.
Etendard de Marengo, glowing crimson, fine.
Géant des Batailles, vivid crimson, shaded with purple, very double, extra fine.
Jacques Lafitte, cherry-crimson, pale edges; large.
Jules Margottin, a superb flower, brilliant cherry colour, fine, and very full.
La Reine, rosy pink, tinged with lilac, very large and full.
Madame Laffay, rosy crimson, large, and very double.
Mrs. Rivers, clear blush, fine form.
Prince Leon, brilliant crimson, large and full.
Queen Victoria, white, shaded with peach, fine.
William Jesse, crimson, tinged with lilac, very large; superb.

BOURBON.

Acidale, blush white, a fine flower.
Madame Angelina, rich cream colour, fawn centre; distinct and beautiful.
Paul Joseph, deep velvety crimson, large and full.
Prince Albert, bright scarlet-crimson, large, and very double; extra.
Souchet, deep crimson-purple, a fine full flower.
Souvenir de la Malmaison, blush white, extra large and full.

NOISETTE.

Aimée Vibert, pure white.
Caroline Marniesse, creamy white, blooms in large clusters.
Cloth of Gold, yellow, sulphur edges, large and full.
Du Luxembourg, rosy lilac, centre red, large, very double, and fine.
Euphrosyne, light rose and yellow, very fragrant, large and full; an abundant bloomer.
Le Pactole, fine clear yellow, large full flowers.
Lamarque, sulphur, very beautiful delicate and fine rose.
Miss Glegg, fine pure white, full.
Solfaterre, sulphur-yellow, large and double.

CHINA.

Cramoisie supérieur, rich velvety crimson, beautiful and full.
Eugène Beauharnais, amaranth, large, very fine.
Marjolin du Luxembourg, dark crimson, superb.
Mrs. Bosanquet, delicate flesh, blooms in clusters, large, and very double.

TEA.

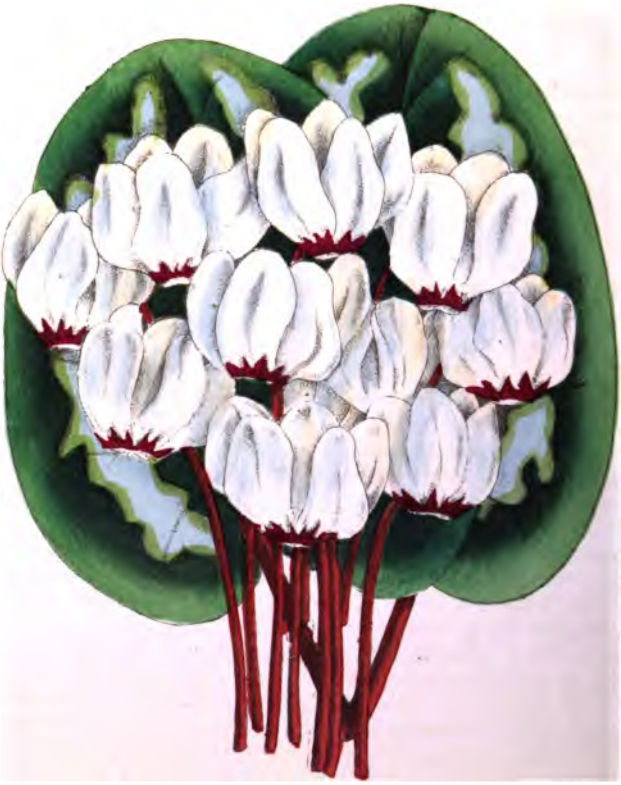
Adam, rosy blush, very fragrant, large and full.
Bougère, deep rosy bronze, superb.
Bride of Abydos, cream colour, tinged with rose; a very delicate and beautiful flower.
Comte de Paris, fleshy rose, very large and full; extra fine.
Devoniensis, straw-yellow, very large; a superb rose.
Eliza Sauvage, yellow, with an orange centre; beautiful.
Gloire de Dijon, salmon-buff, shaded, very large and full; one of the best of the Tea Roses.
Madame de St. Joseph, salmon-pink, large and double.
Moiret, light yellow, shaded with fawn and rose; superb.
Niphetos, delicate straw colour, sometimes snowy white, large and full.
Safrano, bright apricot when in bud, changing to buff; beautiful.
Souvenir d'un Ami, rose and salmon, shaded, large and full.
Triomphe de Luxembourg, rosy copper colour, very large and fine.
Vicomtesse Decazes, clear yellow, with a deeper centre tinged with copper colour, large, and very double.

Herbarium.—I am about to form a herbarium; as I have seen so many plans recommended for drying and sticking specimens to the papers, will you or any correspondent be kind enough to say what plan is the best to pursue.—*Omicron.* [In drying the specimens, care must be taken not to press them so much as to crush them; succulents, and such specimens as drop their leaves, as Heaths, should be dipped in hot water before they are pressed. Each specimen should be placed between a sheet of blotting-paper, and between each filled sheet several empty ones should be placed; for the first day or two the pressure should be only just sufficient to prevent the leaves and flowers from shrivelling. When the papers are damp, the plants should be placed in dry ones, increasing the pressure after every shift till the specimens are perfectly dry, when they may be secured in the herbarium by small strips of paper, gummed on one side, and placed at sufficient intervals to secure them firmly.—ED.]

HORTICULTURAL SOCIETY'S MEETING, FEB. 3.—The Rev. L. Vernon Harcourt in the chair. Twenty-five new Fellows were elected, and among other subjects of exhibition worthy of notice were the following:—A fine specimen of *Erica mutabilis*, from Mr. Roser, gardener to J. Bradbury, Esq.; a seedling Heliotrope, by Mr. Dunsford, of Chingford; a pretty variegated Verbena, raised and exhibited by Mr. Turner, of East Barnet; some fine forced Hyacinths, from Mr. Cutbush, of Highgate, and a specimen of the double-blossomed *Camellia reticulata*, being the first introduced into this country. It closely resembles *C. reticulata* in the leaf; the flower is vivid crimson, and very double. A flower which measured near six inches across was produced in January, although the specimen exhibited was considerably under these dimensions, which is accounted for by the fact of its having been produced on a small side branch, whilst the former was from a strong plant. Mr. Standish, of Bagshot (the exhibitor), affirms that he has no doubt of strongly grown plants bearing flowers of an enormous size. It was sent to that gentleman some years ago, by Mr. Fortune, who purchased it of a Chinaman, under the representation of its being a double *reticulata*, which, almost contrary to expectation, has proved to be correct, and we may consider it as an excellent acquisition. The gardens of the Society contributed specimens of several Epacrises, *Eugenia Ugni*, and some Conifers, including the true *Cupressus Macnabbiana*, a valuable hardy plant, a native of California. Mr. Williams, gardener to J. Fairie, Esq., of Liverpool, sent a collection of cut flowers, comprising some handsome Orchids, Camellias, Early Tulips, *Diosma ovata*, etc. A young stem of the *Aralia papyrifera*, or Rice-paper Plant, from the island of Formosa, was shown by Mr. Fortune (who was present), and who states that there is no doubt that island affords the most considerable supply of this article, which is in great demand at Canton and in the province of Fo-kien. The low price at which it sells proves its abundance, as one hundred sheets may be bought for three halfpence. It is excellently adapted for the manufacture of artificial flowers, and in the city of Foo-Chou-Foo the ladies wear very beautiful ones in their hair, made of this material alone. The paper is formed by cutting the thick pith of the plant in long spiral strips, which are afterwards pressed flat. Dr. Lindley drew attention to drawings of three new Orchids, *Maxillaria venusta, Odontoglossum phalænopsis*, and *Selenipedium Schlimii*, a new Lady's Slipper, introduced recently into Belgium, and which for beauty and singularity are scarcely surpassed by any other plants of the tribe. Boucherie's improvements in timber were also explained.

DRYING, PRESERVING, AND ARRANGING SPECIMENS.—First, be careful to gather the specimens when dry; they may be brought home in the hand as a nosegay, or, what is much better, in a tin sandwich box. Then taking up each specimen singly, lay it smoothly between the leaves of a large book; or several sheets of common paper, then another specimen a few leaves distant, and so on till the box is full; this done, tie it up tightly with a string, and put a weight upon it (such as a flat iron or two). Thus the plants are to remain for a day, and then changed into a fresh book, to dry them still more, and so on for four or five days, when they will all be found dry, of good colour, and fit to put away. Some few plants require a different treatment. In thick-stalked and woody plants, the under side of the stem is first to be cut away. Berries must be dried by being hung up in the sun or air. The Stonecrop and Houseleek, as well as the Heaths, must be dipped three or four minutes in boiling water, before laying out; if this be not done the juicy plants will grow even for a long time after they are placed in the papers, and the leaves of the Heaths will soon fall off; also, water plants are better for being laid between folds of calico for the first day. In drying plants blotting-paper has been considered the best, but Mr. Bentall's paper manufactured for this purpose is found to be in all respects more suitable Dried plants are very subject to be devoured by insects, if kept in a damp place. The best way to manage herbariums thus infested is to spread out the various plants to the sun and air for a day or two, though if well dried, and kept so afterwards, the plants will not be injured. Each plant should be fastened to a separate piece of paper, in the following manner:—Wash over a sheet of paper with thick gum-water, the thicker the better, and let it dry perfectly; then cut this into various-sized strips, which will form bands to fasten on the plants with. Thus furnished with materials, place the dried specimen upon the paper intended for it; take up a proper-sized strip of gummed paper, and having wetted the gummed side of it with the end of the tongue, place it across some part of the specimen, then another in another place, and so on till the whole is properly fixed. Some persons glue their specimens down, others sow them on, but the above method is far superior to either, and much less troublesome.—*K.*

GARDENS OF OLD ROME.—The old Roman householders differed widely from the modern inhabitants of great cities; for while the latter are imprisoned amid interminable piles of houses, that seem always to be enveloped in thick clouds of dust, and never enlivened by the sight of anything green, the former, not excepting the most needy of them, used to aim at having a plot of green continually before their eyes. In the interior of almost every house there used to be an open space, surrounded on all the four sides by covered walks. In the middle of this space was a reservoir, which was arranged to catch the rain-water that poured down from the roofs; in the houses of the wealthy, a fountain frequently played in the midst of this reservoir, supplied by the public water-pipes. In large houses, the reservoir was of great extent, and alive with fishes; around this stretched a grassy plot, called the *viridarium*, which usually contained a laurel-tree. If there were sufficient room, myrtle and plane trees used to be planted along with the laurel. The plane-tree was considered to be the handsomest of all ornamental trees, and although a native of a warmer climate, with proper care and in sheltered places, it used to flourish in Rome. In fact, the entire inner court of the Roman house, which went under the name of the *cavædium*, was occupied, so far as the locality would allow, with vegetation; even the *atrium* was not exempt from it. The atrium, as is well known, was the great court next to the entrance of the house, which was originally occupied by the family, but which was subsequently embellished by gorgeous rows of pillars, and devoted to the reception of visitors. By reason of its necessarily large dimensions, it was not furnished with a roof. In the middle of this spacious court a fountain was continually playing, cooling the atmosphere by its incessant jets of fresh water; this, too, was surrounded by grassy plots; vases of flowers were arranged upon the balustrade between the pillars; so that one might feel tempted to consider one's self in the entrance hall of some country-seat, did not the host of visitors too frequently recall the reality of the city turmoil. A more extensive space the citizens appropriated to green growth, which more nearly resembled a pleasure garden, when they planted the *peristylium*, which joins the cavædium, with grass and trees. This room was devoted to the ordinary life of the family, on which account it was fitted up as handsomely and conveniently as possible. In the great palaces of Rome the peristylia were of vast extent, and, without any impropriety, one might speak of their being laid out with gardens. In the place of shrubs or single trees, such as we met with in the cavædium, there was a gloomy grove of myrtles; rows of plane and pine trees, and of the favourite lotus-tree, supplied refreshment by their shade; there was a perfect forest of trees, which creaked mournfully in the roar of the storm; here, year after year, the singing birds found a hospitable retreat, and multiplied in undisturbed repose. Parrots, swinging in costly cages, entertained the passers-by with their chattering. Peacocks, whose proudly distended plumage attracted all eyes, together with other domestic birds, were carefully kept within enclosed spaces. A larger reservoir supplied the water that was necessary for the fountains, and also for sprinkling the paths when the dust made them disagreeable. In some of the palaces, these reservoirs were so large that they were used as fish-ponds; gold fish swam about in them, ravishing the eye by their colours; or lampreys and necklaced barbs, at the sound of the flute, or being called by their names, used to come and take their food from the hand of their owner.—*W. Chambers.*



CYCLAMEN ATKINSII

The Floricultural Cabinet.

APRIL, 1857.

ILLUSTRATION.

CYCLAMEN ATKINSII.

THIS pretty hybrid was raised by Mr. Atkins, of Painswick, an amateur who has for some years devoted considerable attention to the beautiful family of which the plant we figure is a handsome variety, and who is now in possession of an extensive collection, comprising several hybrids. Mr. Atkins states, "after many ineffectual attempts to produce a good cross between *Cyclamen Coum* or *C. vernum*, and *C. Persicum*, combining the neat habit of the two former with the colour and large petals of the latter, having at the same time the foliage dark, relieved with a lighter band, or marbled, I at length succeeded in raising the present hybrid from seeds produced by a variety of *C. Coum*, impregnated with *C. Persicum*, and this, I have every reason to believe, I shall be able to perpetuate, and thus introduce a new and interesting feature into this beautiful family of plants." *Cyclamen Atkinsii* is a very profuse flowerer, producing its blossoms in as close abundance as shown in our plate. It has proved itself quite hardy, having borne severe frost without injury. The blossoms are white, with a deep crimson centre, and the leaves beautifully marbled. In habit it resembles *C. Coum*, and, like that variety, is of easy culture. The bulbs should be grown in pans or shallow pots, in soil containing a large proportion of leaf-mould, with which the crowns should be covered about an inch in depth; in this respect, *C. Atkinsii* differs from others of the genus, which generally succeed best when but slightly in the soil. It requires to be shifted but once in three years, blossoming more freely under this treatment; a top-dressing is sufficient for the intermediate seasons. The cold-pit is best for its culture, from which it may be brought into the house for the flowering season.

The following descriptive list contains such species as are at present in general cultivation:—

Cyclamen æstivum.—Flowers small, rosy purple, May to July. Leaves roundish heart-shaped, lobes at the base not overlapping, margins entire or remotely toothed. Introduced from Italy in 1596. Hardy. Synonym *C. Clusii;* by some confounded with *C. Europæum.*

C. Coum.—Flowers reddish purple, small, and destitute of scent, January to March. Leaves flat and round, heart-shaped at the base, entire, dark green above, and reddish purple beneath. From the south of Europe in 1596. Hardy. Synonym *C. orbiculare.*

C. Europæum.—Flowers bright reddish purple, small, and sweet scented, July to September. Leaves small, roundly heart-shaped, slightly toothed, and strongly marked on the upper side with a pale irregular band; basal lobes overlapping. From the south of Europe in 1596. Hardy. Synonyms *C. anemonoides, autumnale, fragrans, Hungaricum, officinale,* and *retroflexum.*

C. Ficariifolium.—Flowers large, white or pale flesh coloured, purplish about the centre, March to May. Leaves deeply cordate, the margin cut into five segments. Native of Europe, said also to be found wild in England. Hardy. Synonym *C. Hederifolium.*

C. Hederifolium.—Flowers large, white, changing to deep flesh colour, purplish about the mouth, very sweet scented, March to May. Leaves broad, toothed, with from seven to nine segments, variegated with dark green and white above, purple beneath. Hardy. From the south of Europe. Synonym *C. Africanum* and *latifolium.*

C. Ibericum.—Flowers small, rosy purple, dark centre, February and March. Leaves roundish heart-shaped, small, marbled with white on the upper surface. From Iberia in 1831. Hardy.

C. littorale.—Flowers small, rose coloured, sweet scented, June and July. Leaves roundish heart-shaped, somewhat acute, entire, blotched with white on the upper surface, purple beneath. North of Italy, 1843. Hardy.

C. macrophyllum.—Flowers large, flesh colour, deep carmine centre, June and July. Leaves large, cordate, acuminate, the upper surface marbled with pale green. Algiers, 1850. Tender.

C. Neapolitanum.—Flowers large, pale rose, August and September. Leaves irregular, mostly five angular, with an irregular band of white and purple on the under surface. From Italy in 1824. Hardy. Synonyms *C. autumnale, purpurascens.*

C. Persicum.—Flowers large, of diverse colours, as white, pale purple, etc., February to May. Leaves large, cordate, marbled with white on the upper surface, purple beneath. From Cyprus, in 1731. Tender.

C. repandum.—Flowers light rose colour, March to May. Leaves cordate, thin. From Greece, in 1816. Tender.

C. vernum.—Flowers bright red, larger than *C. Coum,* and of the same form, November to January. Leaves large, round, entire, with the lobes overlapping each other, the upper surface marked with an irregular white band. From the south of Europe, in 1814. Hardy. Synonym *C. vernale.*

Besides the above there are several species described by botanists, which are not yet in cultivation, as well as many varieties raised by hybridizing, some of which possess considerable merit; we are only surprised that more general attention has not been devoted by the lorist to the multiplication of other and equally interesting kinds. Cyclamens present a field in which much remains to be done.

ON THE CULTURE OF THE ORANGE TREE.

BY CITRUS.

I AM frequently surprised at the inconsistent modes of treatment recommended by various gardening authorities, and practised by gardeners cultivating the orange tribe in this country, and I do not therefore wonder at the general bad success which attends their treatment, nor at the ill-formed and worse-grown specimens we so frequently meet with. I take the present opportunity, through the medium of the *Cabinet*, of describing the treatment which I have myself found most successful, and which I can consequently recommend to your readers.

Having procured seed of good kinds, it should be sown in light rich mould, in twenty-four-sized pots, about the beginning of March, covering it about half an inch deep, and placing a layer of moss over the surface, to retain a slight moisture in the mould. The pots should then be plunged in a hotbed previously prepared for them, where the heat can be maintained to about seventy or seventy-five degrees; below this it should not be allowed to sink. In a few days the seed will vegetate and the young plants will make their way through the moss, after which, if weather permit, a little air should be given. In the course of five or six weeks, under proper management, they will be near six inches high, and may then be potted off into small pots, which should be well drained, and again plunged in the hotbed, the heat of which must be steady, and not too great to injure the roots; the object is to obtain a clean growth. By the commencement of July the greater portion of them will be ready for grafting. Choose a shady situation for another hotbed, which should be previously prepared, and then graft the plants; the most certain plan in my opinion is that called cleft-grafting, as the scion heals over the wound more readily than under any other method. The top of the scion should be taken off before inserting it in the stock, which I believe causes them to unite sooner, by inducing a greater flow of sap. At this time they require to be well shaded from the sun by mats, and a proper heat maintained, otherwise failure is too frequently the result. As soon as the scions have properly "taken," air may be given, though sparingly at first, caution in this respect being very necessary. A frame is perhaps the best place to keep them in through the winter, as they are sure to keep better there than anywhere else, if care be taken not to over-water them, otherwise the roots are liable to rot.

In the ensuing spring, about the commencement of April, a little heat may again be given to set them growing, and if plenty of air be admitted they will be prevented from becoming weak. Should any shoot appear to take too much the lead of the others, pinch it in, and by that means fine heads may be formed.

As to the compost most suitable for this tribe, I find nothing better than a mixture composed of two parts well-rotted turves from a good loamy pasture, and cut thick; these, having been left to decompose, should be mixed with one part of dung, or old hotbed manure, and the whole broken through a coarse sieve. Many writers have directed the mixture of other ingredients, some indeed highly stimulating in their nature, as well as unpleasant to use or difficult to procure—all of which I consider quite unnecessary; the main thing is to have good loam, slightly enriched by manure. Should the loam be of a rather stiff nature, a small portion of sand added to it will serve to render it more open and porous; for orange trees and all of their tribe are very averse to soils which are retentive of moisture. For this reason, we always find it beneficial to support the pots or boxes in which they are planted, at a few inches from the floor, to permit moisture escaping. Well-drained soil will generally show, by the healthy appearance of the trees, the good effects of such a shift, compared with those which have been perhaps for years allowed to stand in ill-drained pots or boxes.

In shifting orange trees, should the roots have become matted, and the ball hard, it is well to soak it in water for a short time, and if too clogged, it may be desirable even to wash it out from the roots, but in that case the plant should be reduced, or it will receive a check and flag; yet the roots should be as little disturbed as possible at all times, and unless we are undertaking the management of such trees as have been neglected, the above course will rarely be necessary. It has been recommended by some practical gardeners to shift orange trees but once in two years; but, if they are of manageable dimensions, once a year is better. Should the roots appear rotten or unhealthy, prune them in a little, and see that the fault does not rest with deficiency of drainage. The changes from pots to tubs or boxes, from small to larger, should go on so long as it is desired the trees should grow larger, the compost remaining the same, and watering being well attended to, with a little liquid manure every third or fourth time during the growing season, though I by no means agree with its application in an undiluted form, as but little stimulus is necessary. During the summer-time, from March to September, the leaves and head of the plants are greatly benefited by a good syringing once a day, though when in flower a very fine rose should be used, so as almost to make the application as gentle as dew.

Flowers and fruit are mostly produced on the young wood of the current season; in pruning, therefore, see that the branches are not allowed to become too thickly interspersed, which tends to exclude air and light; check such branches as grow too vigorously, and remove all old and bare wood, to make way for the young. In order to keep the head open, it is advisable to remove the weakest branches altogether, which is best done before the spring growth, in February or March, as few fruit-bearing trees require greater care in this particular.

Of orange trees there are several varieties, and in making a selection the object in view must determine the choice: if good, well-flavoured fruits are desired, I think the blood orange, or Maltese, is far the best kind, being very sweet, and of very thin rind, as well as a profuse bearer; for beauty of appearance, some of the bitter-fruited sorts make a finer show, and many of these have very ornamental foliage, as the gold and silver striped, willow leaved, and myrtle leaved. Along with these might be grown the citron, the lime, and the lemon, the same treatment being suitable to the whole of the tribe.

ROSES AND ROSE-GROWERS.

BY MR. GEORGE GLENNY.

NO branch of floriculture has excited greater dissatisfaction with the public than the Rose trade. An indifferent person might buy a hundred (so called) varieties, and when they came into bloom find so many of the same colour, and almost the same character, that he could not consider them distinct. An exhibitor would be afraid of many being taken for the same variety, and the object of all selections, I will not say collections, is then wholly frustrated. In a sort of controversy which has been carried on in some of the floricultural publications, the different opinions of various dealers came out in strong colours. It is the practice of respectable growers to buy everything, to prove all by growing them a season, to throw away all those which are too much like what we already have, and put the really good novelties into their catalogues; hence Messrs. Lane, Bircham, Wilkinson, and others, have always been taxed with the amount they have to pay for rubbish, which they have thrown aside, and their customers have escaped being subjected to the tax; other growers have catalogued varieties of no value, and their customers have suffered.

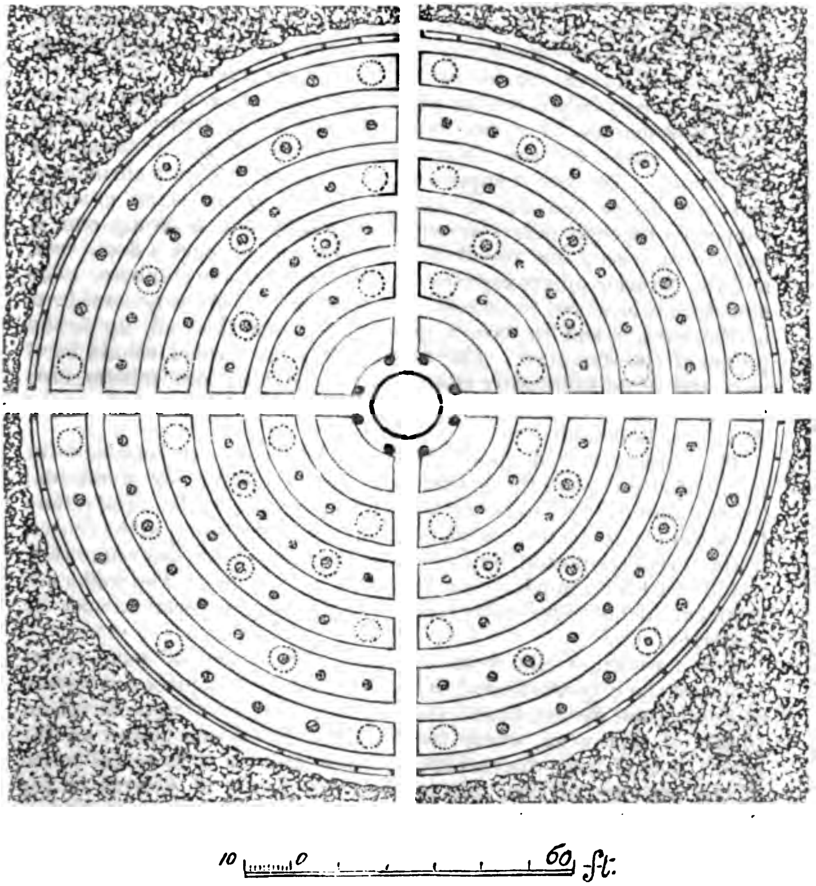
This is precisely what discourages many from buying new Roses; to obviate it, I have annually given a select list of the best in "Glenny's Garden Almanack." I do not profess to give all the good ones, far from it, I have only given a description of thirty-six, although I might very well have extended it to three times the number; but my object has always been to start beginners with what will not fail to gratify them—a list which has not a bad or an indifferent Rose in it; so that if a man wants only half a dozen, he may not be able to choose a bad one, whilst the description of the colours and habits help him to a certainty with what he requires, and this is how it should always be in catalogues. Supposing, then, a person desires to commence Rose-growing, and wishes his trees to be conspicuous in his garden, he ought to let the nurseryman understand that he requires those which are always in bloom, or at least those which have a long season of uninterrupted flowering. This being his chief point, he should next order them to be very distinct; if any are to be of the same colour, and of course some will, they must be different in size and form.

If the nurseryman complies with these two points the grower must be content, for they are the essentials in Rose-trees for ornamental gardens. But if the grower shall intend to exhibit at the summer shows, he must grow some of quite another class; many Roses, that are splendid in form, texture, and colour, are only in bloom a month, and those who exhibit without them will do so at great disadvantage. These should be grown in a quarter by themselves; they should not occupy conspicuous places, because eleven months out of the twelve they are ugly, and should never form single objects; let them be where you can take friends to see them while in flower, but not where people come upon them in the ordinary beds or borders: the garden should be complete without them, or they would form a blank the greater part of the blooming season. Let us suppose, then, that some of our readers order a lot of Roses from one of the principal growers, the buyer must not expect trees with large heads, but stocks budded last year, and with perhaps a single strong branch some length. His very first act must be to cut it down to two or three eyes; he may then plant it carefully in good strong ground, and if his natural soil be not so, he must dig the whole, throw out the stuff, and put good loam and dung in its place, forking it into the bottom and surrounding soil.

Plant the tree and support it in its place with a stake, to prevent its stirring with the wind or from other violence; he must plant it so that the roots are but just covered, the collar or upper part of the root being only just beneath the surface; two or three strong branches will start, and grow and bloom, unless he shall, when they have pushed about three joints, pinch out the growing point, which would excite three joints to each, and so form a good head the same year. If the tree has already several branches, let them, if strong, be cut back to three eyes, or two, if the second eye points outward and the third inwards; and when the buds come out rub off all that come inwards, it is far better than having to cut them off after they have grown, because they only weaken the more important shoots. There are exceptions to this mode of pruning, because some of the short-jointed constant growers only want the weak spindly shoots and all those that grow inwards cut clean away, and if the buds have not been rubbed off, there is sure to be some of these, but the principal branches must not be shortened much. As a good many are about beginning to grow Roses as leading ornaments, and others for purposes of exhibition, these few hints may be useful.

DESIGN FOR A ROSARIUM.

BY. T. RUTGER, ESQ.



YOUR correspondent G. G. has written well on the situation proper for a Rose-garden (see p. 29 in the present vol.), as well as on the preparation necessary for a successful cultivation of the Rose. I would only add, that for a Rose-garden, strictly confined to Rose culture, I should recommend it to be placed in a secluded part of the shrubbery, so that it would not be necessary to go through it at any other time but when the Roses are in full bloom; however, in order to make it attractive at other seasons of the year, some persons might perhaps be inclined to place a Dahlia between each of the Roses, so as to succeed them when out of bloom, and thus sustain an interest in visiting the garden during the autumn; and then, with regard to the standard Roses, if many of them were of the *hybrid Perpetuals*, they would contribute greatly towards prolonging the pleasure they would contribute to the lovers of this, among the most estimable of flowers for decorating the flower-garden.

Your correspondent having written in favour of a circular outline for a Rose-garden, or rosarium, has led me to construct the design herewith given for the *Cabinet*, should you think it worthy of acceptance. The site is supposed to be enclosed within a shrubbery, and the design laid out in zones. In the centre is an erection supported by eight pillars around the exterior, and a strong one in the centre, with a seat round it; it is supposed to have a dome roof, and the exterior pillars are meant to be trellised for climbers. The structure is intended to be elevated somewhat above the general level of the garden, and to have a grass slope from the walk up to the pillars of the structure. The fence round the garden should be of iron, and wired sufficiently close and high to keep out rabbits, etc., and at the same time to be adapted for climbing Roses, such as the Ayrshire, Boursault, etc.

The circles dotted round their circumference are intended for pillars of Roses, and those with a dot in the centre for standards; the remaining spaces in the beds are of course for dwarfs. The pillars for Roses being in a line on each side of the walks leading to the centre, if they were connected by an iron-trellised arch over the walks they would contribute much to the beauty of the garden. The walks are intended to be edged with box, or such other material as may be preferred.

For a rosarium laid down on grass, should any of your correspondents be in possession of, or have access to, "Loudon's Arboretum et Fruticetum Britannicum," they may see a design of mine in vol. iv. p. 256, of that work, where the Standard Roses are placed on the grass; it is of large dimensions, and intended for a large collection of the varieties of this, one of the most lovely of flowers in the nomenclature of Flora.

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BOTANY OF THE MONTH.

BY MR. SHEPPARD, BURY.

CHANGE is the order of nature—during the dearth and darkness of winter, we walked forth as into the unbounded burial-ground of the vegetable kingdom. At that time we discovered few traces of that wondrous profusion of organic vitality which now presents itself to our gaze; the spirit of renewal is sent forth, the earth has advanced in her annual round, and arrived at that period when, as heretofore—

> "Her poles are slanted towards the sun;"

when the great eye of day obtains gradual but never-failing supremacy over winter, darkness, and cold, dispersing light and heat, and calling up life and joy. The fields and woods, over which sadness had thrown her mantle, rejoice, and swell and freshen, and bud and blossom into life, verifying the record of holy writ, and speaking with many-trumpet tongues to our understandings that "while the earth remaineth, seed-time and harvest, and cold and heat, and summer and winter, and day and night, shall not cease." This is a resurrection from the dead—type of that of immortality—a resurrection in which the earth, air, and water participate, calling forth in each unnumbered tribes to enjoy the bounties of the Creator from this, his wide-spread table. "Thou sendest forth thy spirit, they are created; and Thou renewest the face of the earth."

The process of vegetation is general and rapid this month. The Sloe, or Blackthorn, *Prunus spinosa*, first shows its elegant blossoms; a host of others follow, among which it may suffice to name the Ash, *Fraxinus excelsior;* the Hawthorn, *Cratægus oxycantha;* and the Sycamore, *Acer pseudo-platanus*. The Larch, *Pinus larix*, exhibits its red tufts, which speedily expand into young cones; the Horse Chestnut, *Hippocastanum*, displays its leafy honours intermingled with its pyramids of beautiful white and red flowers, the glory of forest trees; while many fruit trees are blossoming in the orchards and on the walls of our gardens. The Beech and Larch attain their full leaf, having cast off their old covering, and assumed a new and more cheering vestment. It is a remarkable fact that the leaves of deciduous trees are generally of a lighter green than those of evergreens, even when fully matured; were it not for these, our woods and shrubberies would be comparatively destitute of those pleasing shades of green and those rich autumnal tints wherewith they please the eye of the observer of nature and admirer of the picturesque.

Many field flowers are now in blossom; one which has always excited my admiration is the delicate little Wood Sorrel, *Oxalis acetocella*. This pretty little flower is almost too well known to require a description; its pendent Snowdrop-like flower of pearly white is tenderly streaked with pink veins; its trifoliate leaves are of so fresh and vivid a green that the herbage around it looks dull by comparison, and altogether it may be considered one of the most unassuming yet attractive gems which our country contributes to adorn the fair chaplet of Flora. The Wood Anemone, or "flower of the west wind," *Anemone nemorosa*, abounds in some districts of England, and may now be met with in full flower; its delicate white or blush-coloured blossoms make it a general favourite; growing in woods and shady lanes, its flowers nod to the passing wind, giving rise to the name by which it is commonly known, "Wind-flower." One of our poets, in the following lines, has commemorated the wild Anemone as a nymph of the woods:—

"Nymph of the woods and forest glade!
In thy own fair vestal robes arrayed,
In the calm of the silent sylvan bowers,
'Tis sweet to gaze on thy drooping flowers;
Chaste and pure as the driven snow,
Yet faintly tinged with a purple glow.
Like mountain crests,
On some Alpine height,
When the snow-drift rests
In the evening light!"

The graceful wild Hyacinth, *Hyacinthus non-scriptus*, with its light elastic stalks and pure blue bells, is now abundant, not only in our fields and on our commons, but throughout the continent of Europe; it is one of the most generally distributed of our indigenous plants. This is a great favourite with children, who, under the name of "Blue-bottles," gather the pretty flowers, for their rustic nosegay, of this humble representative of the beautiful Hyacinths which ornament our windows, greenhouse, and parterre. Some of the curious family of Orchises are in flower, especially the Male Orchis, *O. mascula*, which is one of the earliest of the genus; the flowers are purple, borne on a spike about a foot high, and often diffusing a fragrance around; its leaves are dark green, spotted with dull purple, and may frequently be found springing up in our woods and pastures, where the soil is damp and boggy. Primroses, *Primula veris*, the Cowslip, and other plants of this genus, are remarkable as early spring-flowering plants, which may be seen collected in thousands on the sunny hill-side and along the hedgerows of "Merrie England." The Cowslip has ever been a favourite with the poet. Montgomery says—

"Now in my walk, with sweet surprise,
I see the first spring Cowslip rise,
The plant whose pensile flowers
Bend to the earth their beauteous eyes,
In sunshine as in showers."

Besides the Primrose and Cowslip, we may occasionally discover the Oxlip, which is between the two former, as well as the Mealy Primrose and the Scotch Primrose, both with red flowers; the latter, however, are confined to the mountains of the more northern counties and to Scotland. The Ranunculus tribe is represented in our flora of April by the Butter-cup, *Ranunculus bulbosus*, and *R. auricomis*, the Wood Crowfoot. Some of these indigenous field-flowers, though inferior to many foreign tenants of the garden in splendour as well as fragrance, have a grace and delicacy peculiarly their own; the love of them leads to much that is salutary and delightful. Who has not heard of the emotion produced in the breast of one of our bards, who found a daisy springing up—a real *English* daisy—in his garden in a far-off land, where it had doubtless originated from a clod of earth conveyed thither, adhering to the roots of some more favoured plant? Some of the most curious of the Grass tribe are now in perfection, and in their favourite localities we may find the Cotton Grasses, *Eriophorum angustifolium* and *E. polystachion;* the Blue Moor Grass, *Sesteria cærulea;* and the early Sedge Grass, *Carex præcox*, and *C. pallescens*, the pale variety. In woods, where the soil is of a sandy nature, the singular little Moschatelle, *Adoxa moschatellina*, thrives, almost unnoticed except by the practical botanist. *Cypripedium calceolus*, the elegant Lady's Slipper, is in flower towards the end of this month; although, as appears from a late number of the *Cabinet*, it is becoming scarcer year by year, and is to be found in but few localities. Collectors will do well to allow this and others of our rarer plants to flourish in native grace and beauty, rather than extirpate them altogether by digging them up for their garden, where they seldom do well, or gathering them to fill a blank in their herbarium.

PRACTICAL HINTS ON THE STUDY OF BOTANY, AND THE FORMATION OF HERBARIA.

BY A NORTH-COUNTRY SUBSCRIBER.

(*Continued from page* 60.)

WHEN as many specimens have been gummed down as may be convenient at one time, which of course depends on the leisure of the student, they should be carefully looked over to see that all the strips are secure, and none of them loose. They are then ready to be placed in the herbarium. In arranging the specimens some system is necessary, and perhaps none better than the following. Procure some sheets of stiff brown paper, which fold in half, to contain all the species of each genus, a sheet for each, which will serve as a portfolio to keep them together. At the lower corner, on the left-hand side, paste a slip of paper, on which write the name of the genus, and below it the natural order, thus:—

DATURA.

SOLANEÆ.

By this plan any species or genus may be readily referred to at any time. To receive the genera, some students prefer large portfolios, in which a number may be placed, the names contained in each being written on the back; others have wooden cabinets with shelves, on which they are arranged according to their natural orders. Those who prefer to arrange their herbarium on the Linnæan system, can place the genera in portfolios ticketed for each class and order. A neat thin folio volume of ruled paper should accompany every herbarium, in which every species in it should be alphabetically entered, serving as an index, and labelled appropriately. This will show at a glance all the species in possession of the student, and may frequently serve the purpose, without the trouble of looking them over.

The late Mr. Loudon observes, "Every gardener ought to dry plants and form them into a herbarium. This may be a folio volume of stout thick paper, white, if he can afford it, if not, brown will do; allowing, in binding, the thickness of a leaf for every page, by having a strip bound between each, so that, when filled with specimens, it may shut close and preserve its form. Mr. Toward, who has formed one of the handsomest gardener's herbariums, we have anywhere seen, in four thick folio volumes, uses cartridge-paper, pasting to the back of each leaf one of brown blotting-paper, and round the margin of both surfaces of the double leaf so formed strips of cartridge-paper. These strips rather more than compensate for the thickness of the dried specimens; so that when the leaves are bound up, their edges cut, and the books shut close, the external air is excluded, and the appearance as neat as that of any printed volume. The specimens, dried with bags of hot sand, or between loose leaves of paper, or in any old book, may be fixed to the cartridge-side of the sheets of the herbarium book, according to any arrangement which may be preferred." There is no doubt such volumes would be very neat, as well as interesting to look through, but the botanist will generally prefer to have his specimens on loose sheets, in covers or portfolios.

For the purpose of examining the internal forms of plants, and their various organs, the student will require a good simple microscope on a stand, with three or four lenses, varying from an inch to the sixth of an inch in focus; for studying the minute anatomy of the vegetable kingdom, such an instrument, however, is of little service, a good achromatic microscope being an indispensable requisite.

ON GROWING NELUMBIUM SPECIOSUM AND ITS VARIETIES.

BY A NOBLEMAN'S FLOWER-GARDENER.

THIS splendid aquatic is but rarely met with, excepting in some of the larger and more wealthy establishments, although I am persuaded, from my own experience, that most persons who can command a greenhouse might rear and flower it remarkably well; and what object in the whole of Flora's wide domain can compare with this handsome, fragrant aquatic? I grow and flower the Nelumbium as follows:—Having procured some plump seeds, I file a hole through the thick shells at the base of each, being cautious not to damage the interior by the operation, and place them for a day or two in a basin of water, which I set in a warm place. In the course of a fortnight they will sprout and put forth one of their seed-leaves, which always appear before the root-fibres. I then have ready a tub, not less than three feet wide by two feet in depth, the upper portion of which is well painted for about eight inches inside, which serves to check the growth of confervæ (or slime) over the space covered by water. I fill up with mud so high as just to cover the lower rim of the portion painted, in which I plant a healthy-growing young Nelumbium, and cover the mud with an inch of coarse sand, filling up the tub with lukewarm water, and place it in the greenhouse. The proper time for sowing is about the end of April. The water will require renewal about twice a week, which should be done with water that has stood in the house to acquire the same temperature. The plant will grow rapidly if the heat be not allowed to diminish below seventy-five degrees by day, and air admitted at night when the weather is not very cold. When the sun attains much power, a canvas blind should be drawn to screen the direct rays from the tender leaves, which otherwise are likely to be burnt or assume a yellow appearance; another precaution equally necessary is to bend down the young leaves as they appear, on the surface of the sand, by laying a stone on each stalk until they have attained considerable size and length; otherwise, as the plants grow naturally in water several feet deep, they would come to the surface too soon, and wither.

The Nelumbium has two kinds of leaves, one weakly, which rests always on the surface of the water, and the other much stronger, which rises erect above it; the weakly ones are produced first, and when the surface is covered by these, in about a month the stronger leaves appear, rising out of the water to a height of three or four feet. The plants then demand much less attention, as the slimy matter, which is apt, if unchecked, to injure the tender plants, has little effect on them as they become established, neither does it grow so rapidly when the tub has become shaded by leaves. Towards the middle of September the plant may be gradually inured to the open air; and by the end of the month the tub may be removed out of the house, and deposited in a shed, or other convenient place, until the following spring, as frost, unless severe, has no effect on the roots. Next spring the plant should be placed in another tub, newly painted inside, and have one-half fresh earth added to it. Under such treatment blooms will be freely produced, and a succession of healthy plants may easily be kept up. Seeds preserve their vitality for several years.

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THE FRESH-WATER AQUARIUM.

BY MR. SHEPPARD, BURY.

"This scene
Thou haply mayst delight in, will I fill
With fairy fish, and moss from mountain tarn,
And thou shalt feed them from the squirrel's barn;
Its bottom will I strew with amber shells,
And pebbles blue from deep enchanted wells."

DOMESTIC aquariums have rapidly become very popular and instructive ornaments to our drawing-rooms and greenhouses, for these tiny representatives of our rivers and lakes are to be met with in the apartments of the humble as well as of the wealthy. I am always led to admire them whenever they come under my notice, regarding them as an indication of the growing taste for floral pursuits and of a love of nature, as well as an index of the spread of botanical knowledge, and the perusal of *Cabinets* and *Magazines* by a large proportion of the people.

Scarcely anything repays us by so large a share of amusement and instruction in so short a time as the small article denominated an *aquarium*, costing the outlay of but a few shillings. In its humblest form it affords the possessor a constant succession of novel and charming objects, and adds to the pleasures of life by perpetually offering to his notice a round of beautiful and strange developments of nature's attractions in what has usually been considered "her lowliest walks." The naturalist and the philosopher may here find a source of perpetual delight, and of that all-prevailing harmony and grace which is ever manifested in the works of God; he finds here many things to excite his admiration of the wisdom of creative power manifested among the singular forms and strange developments contained in this small vessel of water—

"Some to inform,
And others to instruct."

For the information of those who may be wishful to establish an aquarium, I may be permitted, as an old and experienced hand, to offer a little advice on its structure. I would, in the first place, recommend the square or rectangular form, as being superior to all others, especially the circular, which I consider the worst, on account of the distorted images which are caused by the refraction arising from its lenticular figure; where the sides of the vessel are formed by parallel plates of glass a clear and distinct view of the contents is obtained, and although the expense of such an aquarium is greater, yet its superiority in this respect over the circular or bell-shaped vessel more than compensates for the extra price. The bottom may be made of slate or wood, the former material being preferable; the sides and ends of plate glass, although thick sheet glass will do very well, this particular should be regulated by the size of the aquarium. The joints at the corners are fitted to wooden or zinc pillars, and secured from leakage by white-lead putty. Such vessels may be constructed for a guinea, measuring twelve by fifteen inches, and of proportionate depth. My own measures twenty-six inches by twenty, and eighteen inches deep, slate bottomed, with birch-wood corners, and cost me £3 15*s*. A sheet of plate glass covers the top, serving to keep out dust, but is elevated half an inch above the top, to allow fresh air to the small animals which sport therein. Some persons provide slate ends, as well as a slate bottom, these being useful, for cementing pieces of stone to them, for the rockwork, being made to represent irregular and overhanging projections of rock; this frequently performed in a very picturesque style, and then lends an additional charm to the whole. In arranging the rockwork, rough stones of almost any kind may be employed; fragments of granite, flint, or sandstone suit equally well. Before using them they should be placed in a stream of running water, or soaked for a fortnight, to extract any impurities. Dark-coloured stones always produce the best effect. The upper tier, or such portion of the rockwork as projects above the surface of the water, is very handsome if made with the clinkers produced at glass-houses. To fasten them together, Roman cement answers the purpose very well, and as it is built up, pieces of coral may be sparingly introduced, and projections or cavities made as taste may dictate. All hard or formal outlines should be avoided, as they seldom look natural, and are calculated to displease the eye of taste.

A stratum of clay, loam, or mud from a pond may cover the bottom to the depth of about three inches, according to the size of the tank, and should have a gentle slope from the back to the front. The main portion of the projecting rockwork may have holes for the reception of loam, in which various ferns and bog plants may be made to flourish above the water.

Leaving the reader time to construct his aquarium, I shall take an early occasion to tell him how to stock it.

THE ALOE TRIBE.

BY MR. JAMES SMITH.

ONE of the largest groups of succulent plants, the Aloes, may almost rank with neglected plants, being seldom met with in cultivation, although among them are to be found many plants of especial beauty, combined with such a singular and interesting appearance of foliage as to stamp them with an unmistakable exotic character. Their cultivation requiring less trouble or time bestowed on it than that of almost any other tribe of plants, makes it more to be regretted that any of this family are so seldom seen in the greenhouses of the amateur. All are natives of Africa and other warm countries, requiring with us shelter from the end of September to June; they may be placed out of doors for the remainder of the year, observing, should immoderate rain prevail, to shelter them, otherwise, being very succulent, they are liable to rot. The majority of these plants are very prolific of suckers or side shoots, which afford a ready means of propagation, if taken off any time during summer from the base of the plants, slightly dried, and then put into moderate-sized pots, filled with light sandy loam well mixed with brick-dust and small pieces of brick broken up; the pots must be well drained, and if the soil be kept just damp and no more, they will root readily in a few weeks. The pots may be set in any corner of the greenhouse, or in a window facing the south. It often occurs that suckers may be taken off ready rooted. Some species, however, are very shy of throwing off side shoots, in which case the leaves may be taken off carefully and treated as suckers, or if the crown of the plant be pinched out, side shoots will be produced, which serve to multiply the kind. All the protection required by this tribe is just sufficient heat in winter to keep out frost. A small greenhouse facing the south-west, or large Ward's case, suits them well. Many varieties are well adapted for window culture, the only harm they are likely to receive in such situations is the too free and injudicious application of water. As a general rule, they ought never to have this element given at all, excepting the lower leaves are perceived to flag, while the soil and drainage should be of such a character as to allow it to pass off quickly; standing water and soddened soil very soon cause the fibres of the roots to decay. The plants need not be shifted oftener than each alternate year, the best season being about the commencement of spring, though it may be done at any time, if proper caution is exercised in the application of water.

I have annexed a short list of a few distinct kinds, all of which are deserving of cultivation, either for the beauty of their flowers or curiosity and exotic appearance. With such a selection the greenhouse may be rendered attractive from early spring throughout the whole of the summer months.

Aloe albocincta, orange-coloured flowers in a branching head, three feet; *A. chinensis*, yellow, three feet; *A. lineata*, scarlet, four feet; *A. prolifera*, orange, two feet; *A. saponaria*, red, three feet; *A. suberecta*, scarlet, three feet; *A. variegata*, pink, three feet.

Apicra imbricata, *A. pentagona*, *A. rigida*, and *A. spiralis* are curious dwarf plants, flowers greenish yellow.

Gasteria maculata, scarlet, two feet; *G. nigricans*, crimson, two feet; *G. pulchra*, scarlet, two feet; *G. subcarinata*, orange-red, two feet; *G. verrucosa*, red, two feet.

Haworthia atrovirens, *H. reticulata*, *H. planifolia*, and *H. translucens* are curious and dwarf, bearing greenish white blossoms, those of the last-named species quite transparent.

Packidendron Africanum, crimson, six feet; *P. ferox*, yellow, five feet; *P. suproaloeve*, orange, five feet.

Rhipido dendron plicatile, red, four feet.

The genera *Apicra* and *Haworthia* are suitable for small Ward's cases, being very dwarf, and require scarcely any attention.

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HYBRIDIZING.

BY G.

THE points to be gained by hybridizing are, first, to obtain the properties or qualities of a tender plant upon a hardy one, or, secondly, the colours of an ill-habited plant upon one of good habit. Generally speaking, these two points comprise all that can be gained; but there may be another object, which is only comprised in those mentioned by implication—the mixture of colour between plants of equal, or nearly equal, claims. The first of these objects is important, and has been accomplished to a great extent in the Rhododendron. The difficulties attending this operation with many flowers are, first, the species flowering at different seasons; secondly, their flowering in different places: for there are certain rules to be observed, without which failure is certain. The pistil of the plant which is to bear the seed has to be impregnated with the pollen or farina of the one which is required, to impart the desired property, and this requires some nicety. First, the seed-bearing plant must be watched, and as soon as the flowers open, the stamens, which hold the powder called pollen, must be taken out by small tweezers before they burst, indeed, as soon as they can be got hold of; this secures the pistil from being impregnated by the flower itself. The next is to observe from hour to hour, or from day to day, and as soon as the top of the pistil is glutinous it is ready for the operation, and at that time the pollen must be applied; consequently provision must be made for it, by forcing or retarding the other plant, so that the pollen shall be ready at the time, or gathering the pollen and preserving it till the female is ready. This is best done between two pieces of glass kept from the air. One thing is certain, if the pollen be not ready, there is no hope; but if it be ready beforehand, it is possible to keep it. I have carried it a hundred miles, and kept it some days, yet it has answered; but how long it could be kept has not yet been proved.

NOTES ON NEW AND SELECT PLANTS.

ANGELONIA ANGUSTIFOLIA. Nat. Ord. *Scrophularinæ.*—A pretty half-shrubby stove perennial, from Mexico, bearing spikes, six inches long, of deep violet-coloured flowers, with green inside the throat, and growing about two feet high. The leaves are narrow, opposite, and slightly serrated. It flourishes in sandy peat and leaf-mould, and is readily propagated by cuttings. (*Journ. Hort. Soc.*)

43. RHODODENDRON ALBUM. Nat. Ord. *Ericaceæ.* Syn. *Vierya alba*—Messrs. Rollison, of Tooting, received this plant from Mr. Henshall, their collector in Java; it bloomed in the stove at their nursery in the winter of 1856. It is a dwarf shrub, producing flowers when less than a foot in height, and although the specific name given to it by Blume would convey the idea of their being white, the campanulate corollas are of a deep cream colour, borne in terminal corymbs, and individually small for this genus, not exceeding an inch in diameter, and rarely more than eight in number. The foliage is copious, about four inches long by an inch broad, oblong-lanceolate, glabrous, bright green above, and cinnamon-brown beneath. (*Bot. Mag.*, 4972.)

44. HOYA CORONARIA. Nat. Ord. *Asclepiadeæ.* Syn. *H. grandiflora* and *H. velutina.*—An inhabitant of the moist woods and shady banks of western Java, where it was first detected and figured by Blume. It has subsequently been found by Mr. Thomas Lobb in the same island, who has forwarded it to Messrs. Veitch, of Chelsea; it appears, however, not to be an inhabitant of Java only, having been found by Dr. Wallich in Silhet. A drawing was made from a plant in Messrs. Veitch's establishment in November last. The flowers, which are produced in umbels, are larger than those of any other in the genus, with the exception of *H. imperialis;* it is not, however, a very attractive plant, the blossoms being of a pale greenish yellow, with five small red spots close around the base of the stamens; the diameter of the flowers is over an inch. The leaves produce an acrid milky juice, which is considered by the natives to assist digestion, who eat the plant uncooked, mixed with salt and capsicum. The foliage is about five inches long, by three across. (*Bot. Mag.*, 4969.)

45. **Dendrobium heterocarpum**, *var.* **Henshallii**. Nat. Ord. *Orchidaceæ.*—One of the several varieties of *D. heterocarpum* sent from Java by Mr. Henshall. The flowers are pale lemon-yellow, the labellum shading off to orange towards the base, with two crimson spots. (*Bot. Mag.*, 4970.)

46. **Eucharis grandiflora.** Nat. Ord. *Amaryllideæ.*—A noble bulb from New Granada, and Choco, in South America. The scape rises rather more than a foot in height, and bears on its summit six or seven large snow-white blossoms, similar in form to a broad-petalled Narcissus; four inches across, and highly fragrant. The cup is large, white, tinged with green. The leaves are of considerable size, and of a deep rich green. This fine stove bulb is deserving of a place in every collection. (*Bot. Mag.*, 4971.)

47. **Begonia microptera.** Nat. Ord. *Begoniaceæ.*—A native of Borneo. The flowers of this species, borne in a close terminal panicle, are not very attractive; they are blush-white, with pale yellow stamens, and of small size. The leaves, however, on the under side, are prettily varied with red on the veins, which are very prominent. (*Bot. Mag.*, 4974.)

48. **Iris reticulata.** Nat. Ord. *Irideæ.*—A singular and very handsome bulbous Iris from the Crimea, well adapted for pot culture in spring. The flowers are solitary, borne on slender angular stalks; their colour is an intense purple-blue, with a narrow, sharply defined, oblong, yellow spot at the end of each sepal, and purple spots on a lighter ground; they are sweet scented, having an odour resembling violets. The leaves are narrow, erect, and about a foot long. It is of easy culture, and flowers very early in the greenhouse, where a succession may be maintained by starting the bulbs at various intervals during the autumnal months. A soil made by a mixture of good loam, old cow-dung, and silver sand is most suitable, and when dormant the bulbs require to be kept dry. (*Hort Soc. Journ.*)

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NEW AND SELECT GARDEN HYBRIDS.

HELIOTROPE NON PLUS ULTRA (Lartay, père).—The corymbs are very large and compact, azure-blue. This fine variety has obtained the silver medal at the last floral exhibition at Bordeaux.

26. **Rose, Georges Dupont** (*Bourbon*).—Flower globose, four inches in diameter, brilliant red centre, with a velvety carmine margin, A strong and abundant bloomer,

27. **Rose, Madame Lartay** (*Tea*).—A large and full flower, salmon-yellow, very fragrant, and a strong grower.

28. **Rose, Madame William** (*Tea*).—Flower very double, pale yellow, changing to copper colour, globular, a vigoroua and abundant flowerer.

29. **Rose, Madame Ardens** (*Hybrid Climber*).—Flower very large and double, clear red, shading off to carmine, under side blush-white, petals of a good substance. This variety climbs well, and is almost destitute of spines. The above four varieties are sent out for the first time by the raiser, M. Lartay, fils, of Bordeaux.

30. **Rose, Belle Marie** (*Tea*).—Large and double, white, shading to rose, resembling in form Souvenir de la Malmaison.

31. **Rose, Catherine d'Albret** (*Bourbon*).—Flowers full, about four inches across; centre bright red, shading off to a metallic purple. The latter two were raised from seed by M. Jacques Raynaud, of Bordeaux.

32. **Calceolaria,** *var.* **Aurea Floribunda.**—This is a dwarf, robust-growing, shrubby variety, well adapted for bedding purposes, raised by Mr. North, of Hyde, near Manchester. The flowers are bright clear yellow, of medium size, and borne in great abundance; the upper lip closing the mouth of the flower. The raiser informs us that he has grown it two or three seasons, and its habit is so strong, he has never had occasion to employ sticks to it.

FLORICULTURAL OPERATIONS FOR APRIL.

IN THE FLOWER GARDEN.

General Operations.—*Bedding plants*, examine the plan of beds and borders to be devoted to this class, and look over your stock of plants, to provide sufficient for the purpose, in which lose no time; attend to stopping the leading shoots, to make them bushy. *Beds and borders*, dress indefatigably. *Caterpillars and grubs*, search carefully and destroy them, especially on Rose trees. *Decayed shoots and foliage*, clear away at all times. *Edgings*, box, thrift, and other green edgings may still be planted, and will root freely if a supply of water be occasionally given; clip. *Evergreen trees and shrubs* may also be planted, but the sooner this is done the better. *Gravel walks*, in dry weather turn and lay afresh, roll frequently after wet. *Green fly*, wherever this pest appears, dip the shoots in tobacco-water, to destroy them. *Lawns*, form and repair by laying down turf and sowing grass seeds; mow, roll, and keep the edges neat. *Manure and mulching*, put round newly planted trees. *Plants in pots*, give a top-dressing to, if not previously done, and shift such as require it into a larger size. *Prune* such evergreens towards the close of the month, and should any deciduous have been neglected, do them at once. *Sticks*, place to blooming plants. *Watering* is required frequently, and should be given early in the day. *Weeds*, keep down.

Cultural Department.—*Alpines* may still be divided; plants required to fill up vacancies in the rockwork may now be planted. Any protection which has been given to those on rockwork may be removed, and a good supply of water given. A north or north-west aspect is best for their summer quarters, where they may now be permanently placed. *Anemones* in beds will require attention, to shelter them from sharp winds, frost, and strong sun. *Annuals, hardy*, sow still for a succession, and thin out where they have come up too thickly; *half-hardy*, transplant if sufficiently advanced. *Antirrhinums*, sow seed in the open ground the first week of the month. *Biennials and Perennials*, finish sowing, separate offsets, and plant. *Bulbs* which have flowered in glasses, etc., cut down the flower-stems and plant in the border. *Carnations and Picotees*, require a good deal of attention, and should have their growth promoted by every possible means. As the flower-stems advance tie them to sticks; keep the surface-soil frequently stirred, to render it open and sweet, as well as free from weeds; also dress off decayed leaves. Should any dark spots appear on the foliage, remove the plants at once, and apply sulphur, dusting it over and under the leaves. Liquid manure may be given, weak, every third time. Those not yet planted out for blooming in pots, beds, or borders, where they are to remain, should now be done. Seed may be sown in pots or boxes filled with rich loam, and plunged in a hotbed of about sixty-five degrees, where they can be protected from drying sun or wind. *Dahlia beds*, prepare by levelling the ground, after which they may be marked out; space should be given for the plants to be six feet apart. Well-rotted manure mixed with fresh loamy soil and a sprinkling of bone-dust, to the thickness of six inches, should be laid over the entire surface of the bed, and the whole be trenched over a foot deep, well mixing the entire together. *Fuchsias, bedding*, some will need pruning, and others cutting down to within four inches; such as have sustained little injury through the winter will only require the side shoots cut in. Remove the covering of leaves which was placed over the beds in autumn; a sprinkling of well-rotted manure should then be dug in. *Gladioluses*, plant five inches deep, placing a little clear sand around each bulb, which should be about one foot distance from each other. *Hollyhocks*, plant out towards the end of the month for latest bloom; strong stakes must be driven in deeply to secure the plants to. All the well-established plants in pots not required for planting out should be taken out of the frames, and sunk in the ground up to the rims; if any push up flower-stems, cut them down about the end of August, they will push side shoots and make fine bushy crowns before winter. *Hyacinths*, protect from the injurious effects of frost, sharp winds, rain, or strong sun, by an awning over the beds; cut away flower-stems when they have done blooming, but on no account injure the leaves of any bulbous plant. *Mignonette* may be sown in a warm border. *Pansies*, should premature flowers appear, pinch them off, which will cause a better bloom in course of next month, the time of exhibitions. See that the beds are protected from rough winds, and the soil is kept firm around the roots; stir the surface carefully. Those in pots require attention to watering regularly, and may have liquid manure twice a week. To produce fine flowers, pinch out the small shoots and weak laterals. Propagation may be effected by young shoots or slips, which should be pricked out under hand-glasses; attend to watering them, and they will soon take root. *Perennials*, those raised from seed last spring may yet be planted, and propagated by offsets. Sowing should now be finished. *Pinks*, see that they are not loosened from the soil by winds or frost, and give the beds a top-dressing of decomposed manure. For fine blooms pinch out or dis-bud them, leaving not more than half a dozen on one plant. Seed may still be sown in shallow pans, or in the border. *Polyanthuses*, plant out and propagate by offsets early in the month; guard from keen winds or frost; if the weather be very dry, they will require constant attention by water. Polyanthuses must not be allowed to flag. Search for slugs. Thin out pips as the flowers come on, leaving but six or seven on a stem. Seed may still be sown. Seedlings in flower should be marked, if worth propagating. *Ranunculuses*, about the middle of the month those planted last February will all be up. Look over them, and put any soil which they have displaced around the neck of the plants. Stir the beds very carefully, and, if no appearance of frost, water liberally; soft water is best. Sow. *Rhododendrons and hardy Azaleas* may now be layered. *Roses*, dress and fork over the beds, and if dry weather prevail, attend to watering. Look over the plants for grubs and caterpillars. *Mulching* should be attended to in the case of newly planted kinds. *Beds for Tea-scented and China Roses* grown on their own roots, may be prepared in an open airy place, where they will not be shaded by trees; the soil should be about eighteen inches deep. These kinds may also be pruned, but it should be done early. *Salvia patens*, plant out at the end of the month, if frost appears to have gone. As the plants grow, peg down the shoots. *Stocks, intermediate*, plant out now. *Tropæolum pentaphyllum* and *T. tuberosum* plant out in light rich soil in a south border if possible, where they may be trained against a wall or fence. *Tulips*, protection from frost and rain, hail, etc., is still necessary. If the weather prove dry, give a good watering, but be careful not to let the water get among the leaves.

IN THE GREENHOUSE, COLD-PIT, AND FRAME.

General Operations.—*Air*, as most plants are now growing freely, plenty of air is necessary at all favourable times to prevent their being drawn up weakly, but shut up early in the afternoon. *Frames* will require to be raised by the help of a few bricks at bottom, to accommodate plants getting rather tall. *Potting*, proceed with such plants as are pot-bound, and repot young stock, water them carefully afterwards. *Propagating* should be performed, whether by seed, cuttings, roots, inarching, or grafting, and the earlier the better, that the young stock may become established before winter; cuttings will generally require shading. *Stop* the shoots of soft-wooded plants, to make them compact and bushy. *Water*, see when and where this is wanted, and let the plants be properly supplied therewith, as this is very necessary to all plants when in the house. *Other directions* given last month may still be carried out.

Cultural Department in the Cold-pit and Frame—*Annuals, tender*, continue to sow for succession; prick out those sown in February and March into the hotbed. *Auriculas*, care must now be taken to protect the expanding flowers from strong wind, sun, or rain. Water freely, and admit air. Those done flowering set out, and take off offsets. *Bedding plants*, harden off, and see that you have a quantity sufficient for your purposes. *Bouvardias*, to have good plants for beds, or pot culture, turn out of pots, shake off the soil and trim the roots, cut down last year's shoots, retaining only three or four eyes; place in a cool frame, keep the lights on however, unless the sun be strong upon them; when they push, admit air gradually. Propagate by cuttings of the root, plunged in a hotbed. *Chrysanthemums*, give air, but protect from sharp frost. Take off more cuttings early in the month, insert singly in thumbs filled with rich mould and sand, lightly water and plunge in a hotbed, keeping close till rooted, then harden off. *Cyclamens*, as soon as out of flower, place the pots on their sides, as a precaution against their being watered, either in a cold-pit or under a wall. *Dahlias*, repot into larger sizes, give air. When sufficient cuttings have been taken off, the roots may be divided, and will make two or three strong plants each, which may be planted out by the end of the month. *Fuchsias*, see last month's directions; repot old plants. *Ixias*, etc., remove the lights altogether. *Lilium lancifolium*, attend to watering. *Mimuluses*, when the roots fill the pots, shift into forty-eights, using the compost as before; divide large plants. *Primroses, Chinese*, pot off into large sixties, in vegetable mould and sandy peat, with a portion of friable loam and turf well chopped, but not sifted. Well drain the pots, and give air. *Verbenas*, give air as much as possible, yet avoid cutting winds and frost; re-shift in time. Pinch out the tops of those intended for bedding.

Cultural Department in the Greenhouse.—*Azaleas*, require constant attention to watering, a little moist heat is beneficial when coming into bloom; shade those in flower, and keep clear of thrips. *Bulbs*, introduce. *Cactuses and Succulents* may be watered more freely. *Calceolarias*, such as require repotting should be attended to in this manner. Tie out, as they increase, to neat sticks; a little liquid manure may be given at times. Look out for green fly. The same may be said of *Cinerarias*, which should be placed near the glass, and shaded from hot sun. Seedlings should be looked over. *Dielytra spectabilis* requires a good supply of water when coming into bloom. *Epaorises and Ericas*, cut back those which have gone out of flower; those coming in should have plenty of air. *Fuchsias*, shift seedlings as required. Water may be given freely; if green fly appear, fumigate immediately. *Oleanders* may be encouraged by a little extra heat. *Pelargoniums*, tie out into a good shape; air must be given in the morning to strengthen and harden the wood, but shut up early in the after part of the day. A little manure-water may be given occasionally. Never allow the plants to flag for want of water. See to green fly, and fumigate immediately one is detected. Fancy kinds are more delicate than the others, and should have a little higher temperature, and not so much water. Stop, pot, and increase for autumnal supply. *Roses in pots*, syringe over-head and water with liquid manure, as they will soon be coming into bloom. Tie up flowering shoots. *Scarlet Geraniums*, increase the supply of water.

IN THE STOVE.

General Operations.—*Air* may be given more freely as the sun obtains greater power. *Bark*, where this is used, fresh bark may be incorporated with the bed, which should have a portion removed for the purpose, and the rest turn over. *Baskets*, renew, and fill with *Hoya bella*, *Æschynanthus*, *Achimenes*, etc.; dip them in lukewarm water about once a week. *Climbers*, continue to dress, train, and tie up. *Heat*, let a brisk heat prevail during the day, relaxing in some degree at night. *Red spider and insects*, these must be looked after and destroyed; sulphur and water applied with a brush over the flues or pipes is the best remedy for the former pest. *Potting*, by all means finish now, if not previously. *Propagate* by cuttings, seeds, layers, suckers, etc., according to the nature of the several kinds. Plunge in a hotbed, which will promote a quick growth. *Temperature* this month may range 80° by day, to 70° by night, and for the Cactus tribe 10° or 15° less. Let neatness be attended to, and all moss, dead leaves, etc., be removed from the walls or paths.

Cultural Department.—*Achimenes*, *Gloxinias*, etc., divide and repot; form specimens by planting a few tubers in shallow pans, in a mixture of sphagnum chopped up, turfy loam, and leaf-mould. *Æschynanthus*, train to trellis-work, or suspend in baskets. *Amaryllis*, pot and plunge in bark beds, if not previously done. *Gardenias*, duly attend to have a succession of bloom, keeping some in a frame, and afterwards introduce them into the stove. *Ixoras*, make specimens by tying them out to form handsome bushy plants. *Orchids and Succulents* may have an increase in the quantity of moisture, which may be provided by more liberal watering, and by dashing it over the flues, pipes, or walks daily.

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QUESTIONS, ANSWERS, AND REMARKS.

Strelitzia reginæ.—I have had a nice plant for several years,it has, however, never flowered with me. It has a rich soil, and is kept in a moderate heat. What am I to do with it to make it bloom?—*B. W.* [The temperature in winter should be kept at about fifty-five degrees, and the soil should not be too rich, rich soil tends to throw the plants too much into leaf; light red sandy loam, or sandy loam and peat suit the Strelitzia best. Having soft fleshy roots, a very moderate supply of water is necessary, except when coming into flower, when it may be freely administered.—Ed.]

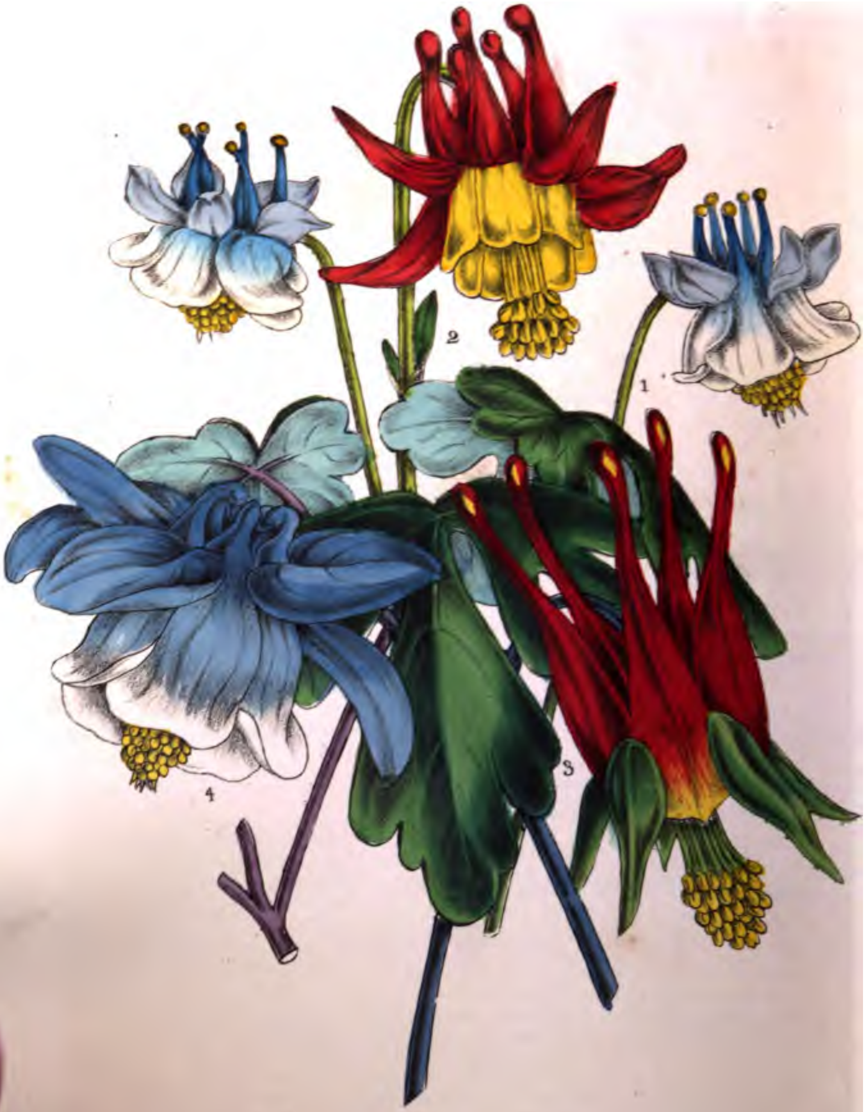
Greenhouse Ferns.—Being desirous of cultivating this interesting and attractive tribe on a small scale, to suit the dimensions of my little greenhouse, it would assist me if you, or any of your able correspondents, would give me the names of a dozen species of such a kind as require but low temperature.—*Eboracensis.* [The following will flourish in a low temperature, and are all of considerable beauty:—Adiantum Capillus Veneris, Alsophila palmatum, Asplenium diversifolium, Cheilanthes farinosa, Davallia Novæ Zelandiæ, Gleichenia dicarpa, Lastrea glabella, Lomaria Magellanica, Platyloma rotundifolium, Polystichum falcinellum, P. pungens, Scolopendrium Krebsii.—Ed.]

Horticultural Society.—A meeting took place, March 3rd, Col. Challoner in the chair, at which there was a very full attendance, when eleven new members were balloted for, and elected. Of plants and specimens deserving a special notice in the *Cabinet*, we may mention cut blooms of a very fine new Thunbergia, from Mr. Veitch, allied to *T. grandiflora*, with large light blue flowers, somewhat resembling those of a Gloxinia. A new Melastomaceous plant, named *Monochætum ensiferum*, bearing beautiful bright rose-coloured blossoms, and of dwarf, compact, and bushy habit. Three plants of a handsome Camellia, called *Saccoi nova*, raised from seed in Italy, by Sig. Sacchi; it is a moderate-sized flower, beautifully imbricated, and very high in the centre, colour clear rose. Also C. Countess of Orkney, white, with rosy stripes. *Rhododendron Jasminiflorum*, a nice plant from Mr. Veitch, with several trusses of bloom out; a very attractive species. A new Oncidium, exhibited by Messrs. Jackson and Son, of

Kingston, was well deserving of attention. The stems are very long, and bear numerous buff and yellow flowers. A variety of *Lycaste Skinneri* was also shown, having the labellum pure white. *Cypripedium villosum*, from Mr. Lawrence, gardener to the Bishop of Winchester; a fine specimen. *Vanda tricolor*, from Mr. Edmunds, gardener to the Duke of Devonshire, at Chiswick House, who also sent half a dozen pots of the double white *Primula Sinensis*, in very large pots, each plant being very bushy and full of blossoms; all the plants were extraordinary specimens, and measured *from eighteen to twenty inches across.* From Messrs. Cutbush, of Highgate, we noticed a beautiful selection of Hyacinths, all being excellent varieties. The gardens of the Society contributed, among other things of less note, several new hybrid Begonias and Epacrises; the new and large Mignonette; *Ardisia lentiginosa*, with white and red berries; *Coccosypselon repens*, an excellent thing for suspending in baskets, the shoots hanging down gracefully, and bearing clusters of blue berries, which remain on all the winter; it propagates freely by seeds. *Pinus Brutia* was represented by a cut branch ornamented with six cones; and from John Howes, Esq., were shown some exquisite dissections of leaves and seed-vessels of plants. A specimen of the branching Pine Apple, from Malacca, excited much interest, having been fruited for the first time in this country. The base of the main fruit sends out as many as a dozen young fruit, and the upper part, or crown, is covered with a very short fringe of stunted leaves. A book of drawings of this curiosity was also produced, which were made by an European artist in China, for the late Mr. Reeves. A resolution of the Council was explained by the Chairman, to the effect that the annual subscriptions of newly made members would not be charged till after the 1st of May.

We are happy to be able to announce that the Society has at length made arrangements for a display of "Horticultural manufactures" at their forthcoming exhibitions; and invite the makers or inventors of such articles as the following to send in specimens. Class A, *Heating Apparatus*—boilers, hot-water pipes, furnaces, flue-tiles fixed, etc. Class B, *Machines*—for mowing, wheeling, sowing, transplanting, fumigating, watering, vermin traps, pumps, hose, etc. Class C, *Garden Tools*—spades, forks, hoes, rakes, etc. Class D, *Cutlery*—knives, scissors, shears, scythes, pruning instruments, etc. Class E, *Pottery*—garden-pots, bricks, pipes, tiles, border-edgings, etc. Class F, *Labels*—in wood, metal, or glass; plain or enamelled, etc. Class G, *Objects of Decoration*—as glazed cases, aquariums, vases, designs for fountains, flower-pots, baskets, brackets, chandeliers for conservatories, etc. Class H, *Materials for Construction*—roofs, glazed and unglazed, ventilators, asphaltes, concretes, slate-work, etc. Class I, *Protecting Materials*—nets, wire-work, woven fabrics, mats, straw coverings, tents, etc. Class K, *Bee Hives*—with or without honey, including all apiarian apparatus, etc. Class L, *Philosophical Instruments*—as thermometers, hygrometers, actinometers, etc. Class M, *Miscellaneous*—for any articles used in gardens, not included in the other classes. We consider this a step in advance, and in the right direction. All applications for space to be made to the secretary, on or before May 16th.

APHELEXISES.—Cuttings taken any time in August root readily in silver sand under a bell-glass, in a gentle heat of about seventy-five degrees; as soon as rooted they should be potted off into small pots, in very sandy peat, and set in heat again till they are rooted round the pot, when they should be hardened off. The soil I have always succeeded with, and recommend, is rich peat, made very sandy; if it be poor, a little light loam mixed with it will greatly benefit it. The best time to shift them is the month of July. If the plants are not bushy, any shoots may be cut off at that time to make them so; and, after shifting, they should be set out of doors in a similar situation to that which Heaths would be set in. The advantage of giving them a long period out of doors is so great, that I should be inclined to put them out by, or even before, the middle of July, and an occasional watering with clear liquid manure, about once a week during the spring and summer months, will be found of great advantage to them. In winter, a dry and very airy part of the greenhouse should be chosen for them, as they are impatient of a confined atmosphere. Treated in this way, they begin to show colour by the end of January, and by March are ornamental enough to grace the conservatory, where they will make exquisite ornaments until the season for removal out of doors.—*T. S., Lincoln.*



AQUILEGIAS.

The Floricultural Cabinet.

MAY, 1857.

ILLUSTRATION.

AQUILEGIAS.

OF this genus several species have long inhabited our gardens; one, *A. vulgaris*, is mentioned by Dr. Turner, in that part of his "Herbal" which bears date 1564. The four species figured in our plate are, however, of much more recent introduction, and all handsome plants, worthy of a place in any garden. For rockwork there are few things which are so suitable as the varieties of this tribe, which require little or no trouble in cultivation, grow well in common soil, and are readily increased, either by division of the roots or by seed. In our illustration, No. 1 is *Aquilegia Kanaoriensis*, a native of the dry, rocky districts of north-west Himalaya, from Cashmere to Kamaon, growing at an elevation of from ten to fifteen thousand feet. It was introduced into the Royal Gardens of Kew through Dr. Thomson, and flowers in the open border in the months of May and June, attaining a height of twelve or fourteen inches. No. 2, *A. arctica*—this very showy plant is a native of the wilds of Siberia; it is a very hardy kind, grows about eighteen inches high, and makes a fine show on rockwork. No. 3, *A. Skinneri* (syn. *A. Mexicana*), is by far the handsomest of the genus, and although from Guatemala, a country much to the south of any which had been previously supposed to produce a species of Columbine, it has proved to be perfectly hardy, and has borne some of our sharpest winters with impunity. It grows about two feet high, and flowers in great beauty during the summer and autumn. No. 4, *A. jucunda*, a fine species from Siberia, growing about one foot high; when planted in a mixture of sandy loam and leaf-mould. It requires to be kept free from damp when in a state of repose, but freely supplied with moisture during the season of growth, otherwise the plant seldom flowers. Its pretty blue and white blossoms come to perfection in July. This species was raised in the gardens of the Horticultural Society, from seeds received from the late Dr. Fischer.

In addition to the above, the following species are among the best of the tribe, and may serve as a guide to intending purchasers—all of them may be procured at the principal nurseries:—

Aquilegia alata alba, eighteen inches, flowers white; *alpina*, twenty inches, blue; *atrosanguinea*, eighteen inches, deep red; *Canadensis*, eighteen inches, orange, red, and green; *formosa*, twelve inches, red and orange; *fragrans*, eighteen inches, pale red; *glandulosa*, nine inches, white and blue; *grandiflora*, fourteen inches, large size, blue; *leptoceras*, eighteen inches, blue and white; *Siberica*, twelve inches, blue; *sulphurea*, twelve inches, pale yellow.

NOTES ON THE PHILOSOPHY OF GARDENING.

BY CLERICUS.

PROPAGATION OF PLANTS BY STRIKING.

MANY persons who are gardeners by profession, and others who engage in this delightful recreation, are ignorant of the true principles of the art, and unable, not unfrequently, to explain the reason of many processes which they are in the daily habit of practising. To assist such in gaining a knowledge of the "why and because" of many things connected with the successful practice of gardening and operations connected with the propagation and culture of plants, I have drawn up a few brief explanatory remarks, and first on that indispensable knowledge to a gardener, the art of propagating by striking cuttings, layers, etc.

When cuttings of plants are put in, being deprived of their natural feeding organs, namely, the roots and fibres of the parent plant, they receive a temporary check to their growth, and have, to preserve their vitality, to fall back in a great measure on their own resources, and live almost entirely on the nutrient materials they are already in possession of, partly laid up in the cells of their stems, but more especially in the buds, or growing parts. Hence it is generally of importance to have several buds on each cutting it is desired to strike, while leaves, or at least a number, except with evergreens, are a disadvantage, by giving off too great an amount of water and oxygen. With evergreen plants the action of leaves is so slow, that they may be left on, to assist in maturing the pulp for the new roots, although in all cases no such organs should be allowed below the surface of the soil, where they only tend to produce canker, and other diseases. The lower end of a cutting, especially if from a very succulent plant, ought to be cut with a heel of hard or woody stem, wherever practicable, and must likewise be cut sharp and smooth; this is to prevent the evils of stagnation, and consequently rot, through water remaining in the irregularities. The application of collodion for the same purpose is very useful, the thin film sealing up the end in a manner so as to shield it from such injuries in a very complete manner. The heel of older and harder wood is beneficial in preventing too much moisture being taken up by the more open vessels, which would render the cutting dropsical, as it is termed. For the same reason plenty of drainage is essential, and many plants will only strike in pure sand, or in soil where this porous material forms a large proportion of its ingredients, affording a quick means for the water to pass off. In these cases, water may be supplied frequently, but in small quantities, and thus the risk of stagnation is avoided. Stagnant water accumulating around the base of cuttings induces decay, and the production of numerous animalcules, fungi, and other injurious agents, clogging up the pores with sour and destructive materials. Heavy and close soils, as well as those which are too rich, being retentive of water, are bad for most cuttings.

Cuttings, before the formation of new fibres or rootlets, have but scanty means for furnishing themselves with a supply of food, they are unable therefore to bear the loss of much water or oxygen through their leaves, hence shading and bell-glasses are useful; the first in modifying the intensity of light, as vegetable substances submitted to it part with oxygen, and the latter as a means of maintaining a certain degree of vapour in their atmosphere; yet light must not be altogether excluded, any more than air, both being of importance in the formation of healthy pulp. From these considerations it will readily appear that, out of doors, a northern aspect, screened from the sun and wind, is found the best place for putting in cuttings in the open border. The same principles of shelter apply to the striking of buds or eyes.

Some plants are increased by layering. The strawberry, for instance, sends out runners that take root; the willow and privet, if their branches be bent down to the ground, send out roots, and, if then separated from the parent stock, form new trees. In the generality of instances it is necessary to interrupt the downward flow of the sap, so as to cause the formation of root-fibres; this leads to the practice of slitting, or cutting in a sloping direction upwards, or ringing the stems and branches of various trees, shrubs, and plants intended for propagation by layering, and all of which operations fulfil the design of checking the descent of the pulp, while the sap going up in the central parts is not interrupted, consequently the layered branch grows as well as if it had not been so treated. In all these cases, if the soil be too damp, disease is induced. By the close of autumn, layers are generally sufficiently furnished with young roots to feed them without farther dependence on the parent plant, and may be separated; but they are still weakly, and in such cases require protection from bright sun, and attention to watering. While layers remain in communication with their parent plant, they are in no danger of being destroyed for lack of food; but when this connection is severed, attention to a due supply of moisture for a time is most essential.

ON THE CALCEOLARIA.

BY H. W., HACKNEY.

THE great perfection to which this plant is now brought by improved cultivation is well known, and examples of it may be seen at our exhibitions; so great is the change in "what used to be," even in the same varieties, that, as formerly grown, they would now be scarcely recognised. Although the culture of Calceolarias is attended with some little trouble, yet there are few flowers, in my opinion, which hold out greater hopes of still further improvement, and being an experienced hand, I have gathered a few hints together for insertion (if you think fit) in my old friend the *Cabinet*, hoping they may not be deemed amiss, if so, I shall perhaps forward something more on my favourite plant at an early opportunity.

First, as to the shrubby and half-shrubby varieties: these may be increased by slips taken off in October and November, the lower temperature and prevalent moisture inducing a formation of young rootlets; the *true* shrubby kinds may be struck in summer, from well-ripened shoots, which establish themselves, when potted off, in time for winter, and require small pots, with a mixture of light sandy loam and vegetable mould in equal proportion. Immediately they are potted they should be set in a close frame for a month, which will immediately contribute to an early growth, for exposure has a tendency to dry the foliage and injure the plants. The soil should be kept moist while in the frame, but the foliage ought not to be wetted, as it has a tendency to rot the plants. When November is nearly past place them on a shelf in the greenhouse, near the glass, where they should remain during the whole of the winter; here they will grow freely, and as soon as their roots fill the pots, they must be shifted into larger sizes, which encourages their growth; for, if not removed, there would be a crop of weak-blooming shoots, which would injure the proper bloom the ensuing season. In March repot them into twenty-fours, with sandy loam enriched with well-rotted cow-dung; the latter being very beneficial, and well suited to the Calceolaria. When April comes in, repot into double the size, with the same compost, or perhaps with a greater proportion of decomposed cow-dung, and make provision for a very free drainage. A free supply of water and liquid manure is essential here, and affords
responding quantity of nutriment; fresh water should be
rly used, and every third watering, liquid manure. The plants
l be kept in the front part of the greenhouse during the time
ng from autumn to the close of the blooming period, which is
ally the month of July. In hot sun a canvas screen is requisite
the glass. When the stems are withered, I repot those plants
h are desired for specimens the following year, reducing the

balls, and place them in pots one-half the size they had been grown in. After this operation they should be placed in a cool frame, and kept shaded for a month, and afterwards exposed in the shade, in the open air, till about the middle of October, when they may be removed to the greenhouse as before. They will require potting again in March and April following, after which they may be treated as in the past year. It is a good plan to take off a large stock of offsets every autumn, so as to have a quantity of large two-year-old plants to bloom every season. Under this plan of treatment plants may be had from two to four feet high, clothed with blooming shoots in each part, and these will form a head three feet and upwards in diameter.

If there be a great number of plants, some may be turned out into the open border, making choice of a position where they may have shade from eleven to three o'clock in the afternoon, as the intense heat of the summer mid-day sun is injurious to the Calceolaria. To raise them from seed, proceed as follows: as soon as ripe, in the middle or end of July, let it be sown in pots, placed in a shady part of the hotbed, or forcing-house, where the young plants will speedily come up; the soil must not be kept too moist, as it renders them very liable to rot off. When they have become sufficiently strong to bear potting off, which will be by the middle of September, pot them in sixties, in vegetable mould and loam, with *free drainage*—this is of great importance. After potting, set them in a cool frame, which should be shaded from mid-day sun, and kept close for a fortnight, gradually exposing them to the air; when strong enough, they may be removed to a greenhouse, in which find a shady situation for them. The plants will be strong ones by the end of autumn, and will bear winter treatment without the least injury, and, if thus got forward, they will bloom the next season. This immediate sowing will not do for such seed as is late in the year, the difficulty consisting in the almost certain "damping off" of the tender little plants during winter, notwithstanding the greatest care that may be bestowed upon them, as I have myself too often experienced.

REMARKS ON THE TULIP AND TULIP-CULTURE.

BY A NORTHERN GROWER.

ACCORDING to Gesner, the Tulip was brought to Europe from the Levant in the year 1559, and we further learn that it was cultivated in England by James Garnett, in 1577. The Tulip became an object of particular interest in the Netherlands about the middle of the seventeenth century, the period when the "Tulipomania" was raging to that height which has found no parallel, except perhaps in the South Sea bubble, and the railway schemes of our day. I need not particularise on the extent to which this species of floral gambling was carried, but refer the reader to an amusing account of it in Mackay's "Extraordinary Popular Delusions," merely observing that the taste for Tulips increased in England on the decline of this excitement abroad, and year after year, new and greatly improved varieties were raised, resulting in the many splendid flowers now in cultivation.

Florists have divided Tulips into three classes, viz.:—1, *Byblœmens*, such as have a white ground, variegated with purple, the edges well feathered, and the whole forming a well-shaped cup. 2, *Bizarres*, having a yellow ground, variegated with crimson-purple, velvet, etc. 3, *Roses*, with a white ground, variegated with rose colour, scarlet, or crimson. To propagate the Tulip by seed, for new varieties, the most successful method is to select such as have good strong stems, with well-formed cups and most perfect flowers. Such as are selected for seed ought to be exposed to the weather, for shading prevents the seed coming to perfection; it should remain on the stems till the seed-vessels, or capsules, open, then cut them off, with a few inches of the stem, and lay them to dry. The best time to sow the seed is the month of October. Procure some shallow pans or boxes, which fill with light sandy loam, making an even surface to receive the seed, which cover with about half an inch of light soil, mixed with one-third of stable manure. They will not appear until about the middle of March following, and as the tops will again be dead by the beginning of June, it is necessary for them to remain in the pans for two years, as they are in general five or six years before they flower. After the second year they may be taken up, and planted in good new soil every season.

An open airy place is the best situation for forming the beds for flowering bulbs. The natural soil should be taken out to the depth of about eighteen inches, and the space filled up with good sandy loam from an old pasture, mixed with a small portion of well-rotted two-year-old horse-dung. The bed must be raised three inches above the paths, at the outsides, and four inches at least in the middle; this convexity will render it more capable of throwing off the water when at any time exposed to heavy rain. The planting is best done in the beginning of November, placing the bulbs about five inches from each other in the rows, and the same distance from row to row, being careful to put in each hole a little fine river sand, before you introduce the bulbs; this is not only of great service to the roots, but also tends to prevent the attacks of wire-worm and grubs. The proper depth of the holes is about four inches. After planting, they will require very little attention until the latter end of February, when most of them will make their appearance above ground; they must then be carefully examined, and if any leaves or bulbs are found to be injured by canker, the affected part must be taken off carefully, a fine dry day being chosen for the purpose; if the wounded part be exposed to the sun and air, it will presently heal over. When the flower-buds make their appearance, great care must be taken to shelter them from hailstorms, heavy rain, or frosts. This may be effected by having pieces of circular board, about twelve inches across, to slide on sticks by a hole through the centre. These being stuck in the bed by the side of the bulbs will form a cover to the flower-buds, which can be raised higher at pleasure. This method I think preferable to covering the beds with mats and hoops, or even an awning, until the buds be farther advanced, as I have proved by experience that the latter means are apt to draw up the stems so weakly as to render them almost unequal to bear the cups, and at the same time so weakens the bulbs, that good flowers are difficult to be obtained. As soon as the colours of the flowers begin to show themselves, it is then necessary to cover the bed with an awning, as exposure to either sun or rain would cause the colours to mix or run, and thus spoil the beauty of the flowers; as soon as the petals begin to fall, the awning should be removed however, and the bulbs prevented maturing seed, by breaking off the pods, which will strengthen them greatly. They may, and indeed in all cases ought, to be allowed to remain in the ground until the foliage attains a yellow hue. Lay them then on boards, in a dry airy situation, under cover, until the time for planting again comes round.

ON THE MANAGEMENT OF TROPICAL FERNS AND LYCOPODIUMS.

BY R. S.

FERNS and Lycopodiums being such universal favourites, and of simple culture, whether hardy or tropical, a few remarks may be acceptable to the amateur or others about to commence Fern culture in the stove. Nearly all the tribe delight in shade, and where there is a stove adapted to their culture, a proper situation for them is generally attainable. Planted on rockwork at the end of a house, where the climbing kinds are permitted to run up the wall, is perhaps the best, and in such a situation, provided the temperature at night in winter be maintained at from 55° to 60°, they will flourish in surpassing beauty. A great point, and one frequently overlooked in the case of these plants, is to secure for them a period of rest, by reducing the temperature in winter to a sufficient degree. Where this is neglected the plants become drawn and weakly, so tender indeed, that a little sun, damp, or extra air at once disfigures them. From long experience, I find the best condition, as to temperature, suited to their period of rest is from 50° to 60°; a medium between these two points may be maintained, but not much exceeded, in the range of night temperature in winter: a few degrees more for the day may be safely allowed. In July and August artificial heat ought to be discontinued, and if the stove be kept aired during summer, though in moderation, the plants may be kept in good health and vigour. The soil best adapted to the wants of Ferns and Lycopods resembles that which is generally used for Orchidaceous plants, namely, peat of a very fibrous or rather spongy nature, abounding in decayed moss; such as is close and heavy is unfit for the purpose. The small-growing kinds need nothing else for compost; but for the larger sorts, the mixture of some moderate-sized pieces of yellow turfy loam is of advantage. Enough of silver sand should be used to give the soil a gritty appearance. To keep the mixture porous, and to secure a proper drainage through the whole, there is nothing so useful as well-burned cinders, proportioning the size of the pieces to that of the plants.

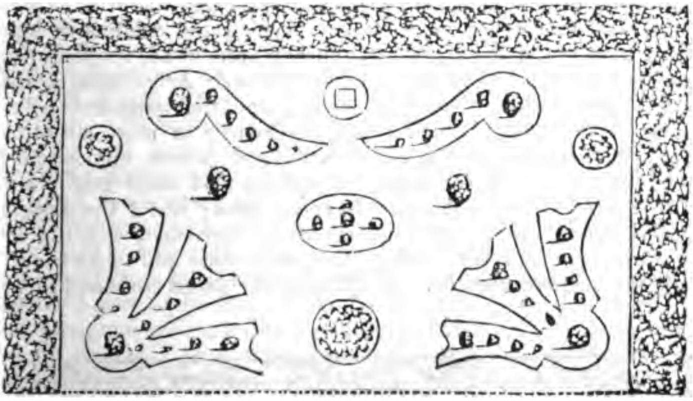
Potting may be done when the plants begin to make new roots, in March; they should be so placed that the crown of the roots is about on a level with the top of the pot, and have a free drainage. A too frequent impression prevails that water may be unsparingly used in pot culture, which is erroneous. It is true an abundance may be administered whilst in a state of vigorous growth, and they should not be allowed to become quite dry; the more delicate and succulent kinds perish if over-watered; hence the supposed difficulty of growing the delicate gold and silver *Gymnogrammas*, many *Nothochlænas*, *Cheilanthes*, and others. Syringing the fronds, and sprinkling slightly with tepid rain-water, is very advantageous to all but the small hairy and succulent species. During the warmest summer weather it may be done once or twice daily.

Some Ferns are increased by seed obtained from the ripe fronds, which is sown in pots of fine mould, half filled with potsherds, to secure good drainage. It is best sown thinly on the surface of the soil, and may be covered with a bell-glass and set in a shady part of the house. When the young plants are large enough to be handled they may be potted off in small pots, set in bottom heat for a day or two, and shaded. Most frequently, however, Ferns sow themselves, and thus save the trouble of gathering the seed and sowing it; numbers of young ones may generally be found springing up at the foot of the parent plant. Many kinds, again, may be increased by division of the rhizomes, each piece having some of the fibres attached. A few sorts produce young plants at the extremities of the fronds; these may be taken off, potted, and shaded as before.

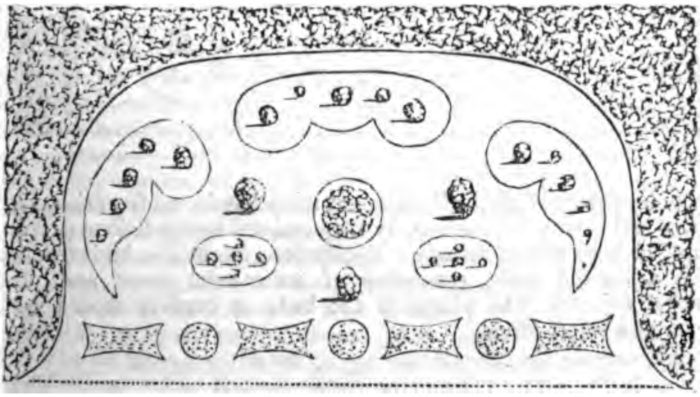
Lycopodiums may be increased by cuttings or layers; rotten leaf-mould and loam with sand suits them best, in other respects they require the same treatment as exotic Ferns. In an early number I purpose to give a descriptive list of such greenhouse and stove Ferns and Lycopodiums as are within the means of most persons as to price, which may be procured without much difficulty, and afford pleasure to all by the beauty of their forms and delicate markings.

DESIGNS FOR SMALL FRONTAGE GARDENS.

BY. T. RUTGER, ESQ.

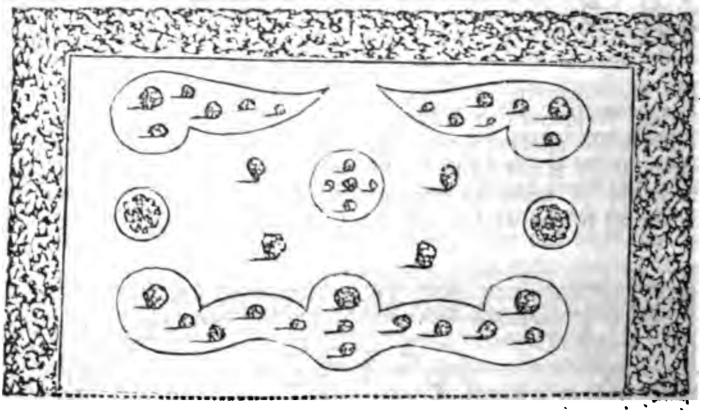


The accompanying designs are intended as frontages for small suburban residences or cottages, and may be laid out on any scale suitable to the allotted space. The designs being intended for small grounds, there is not room for much display of taste or variety, but it may not be amiss to offer a few hints upon them. And first with regard to the walks:—These I should prefer being laid down



with grass; or, if gravel be preferred, with neat plants, about two inches high at the margins.

With regard to the plants and shrubs proper for gardens of this description, I should recommend their maximum of growth to be in proportion to their situation, as, by this means, a greater variety may be introduced. I have seen instances where a single tree has overshadowed a whole garden, rendering void the possibility of anything else growing in it. The shrubs should in all cases comprise as great a variety of evergreens as possible. Among the commoner kinds which I have found to flourish in suburban gardens are the following: Common and variegated Hollies, Box, Chinese Arbor-vitæ, Aucuba Japonica, Red Cedar, Evergreen Privet, and the large-leaved Irish Ivy; the latter plant, which grows luxuriantly in most situations, might not only be used to cover walls and fences, but might be trained up in pyramids, or in any other form that taste might point out, by having a framework fixed in the ground; and if the Jasmine, Clematis, or any other light climbers were intermixed with the Ivy, they would give a relief, and at the same time add to its beauties during the summer months. Respecting deciduous trees and shrubs,



I should make use of the lighter and more handsome flowering kinds that would thrive, and such as, by an occasional and judicious pruning, might be kept within bounds. Decorations might also be introduced upon a limited scale, consisting of ornamental vases, and other tasteful objects. The plants in the beds or borders should be of dwarf and select kinds.

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A DESCRIPTIVE LIST OF STOVE AND GREENHOUSE PLANTS, REMARKABLE FOR THE VARIEGATION OR HANDSOME APPEARANCE OF THEIR FOLIAGE.

BY MR. WM. AITON, SHEFFIELD.

THE floral exhibitions, especially those which have been held at the Crystal Palace, indicate the increasing favour with which plants of ornamental foliage are viewed by the public, as well as the attention which is now devoted to their cultivation. As a class, I am persuaded they fairly eclipse many plants which are cultivated solely for their flowers, and hope the encouragement afforded to their extended cultivation by public competition, and the offer of liberal prizes, may give such an impulse as will cause them to be shown at every floral exhibition throughout the kingdom. A selection of the best (and many of these are now to be had at a moderate price) should be in every collection, and will not fail to afford gratification to the purchaser and his friends. One great recommendation of plants with ornamental foliage is, that many of them are beautiful objects all the year round, and in this respect possess additional merit. The descriptions given with each plant are necessarily brief, but such, it is hoped, as may enable any one unacquainted with the species to select such plants as are in accordance with his taste. The stove and greenhouse plants will be described separately, and although many of the former would grow in the temperature required by the latter, yet they are only to be seen in all their beauty when grown in a warmer atmosphere.

FIRST DIVISION.—STOVE PLANTS.

Anæctochilus intermedius.—Foliage beautiful dark green, with golden yellow lines in the middle of each leaf.

A. Lowii.—Fine, large, deep velvety green leaves, striped and veined with coppery red.

A. setaceus.—Very dark brownish green, soft velvety foliage, handsomely marked with golden yellow veins.

A. xanthophylla.—Similar to the above, but having a broad yellow stripe down the midrib of each leaf.

All the above are dwarf-growing herbaceous plants; the flowers are inconspicuous, but the want of attraction in this respect is amply compensated by the beauty of their foliage.

Aphelandra squarrosa.—Foliage rather large, bright olive-green, with a broad silvery white stripe up the midrib, and narrow ones on the side veins. The flowers yellow, in a spike.

A. squarrosa, var. *citrina.*—Foliage bright clear green, the stripes on the side veins white, and much broader than in the preceding species. Blossoms pale yellow, and stalks reddish brown.

A. squarrosa, var. *Leopoldii*.—Large, handsome, dark green leaves, marked with pure white veins. Flowers yellow.

Begonia splendida.—A dwarf species, the young foliage covered with crimson down, having a very handsome appearance, resembling plush.

B. Thwaitesii.—Leaves prettily variegated and mottled with green and lead colour. Flowers blush and pale yellow. This succeeds best if grown under a bell-glass.

B. xanthina, var. *marmorea*.—Foliage large, marbled and blotched with creamy white on a dark green ground. Stalks pink. Blossoms white, shaded with salmon.

Bertolonia marmorea. Syn. *Eriocnema marmorea*.—Leaves about three inches long and two across, curiously ribbed and veined as in melastomaceous plants; with broad alternate stripes of olive and greenish white. A pretty, little, dwarf, free-flowering plant, the blossoms pink, and stems brown.

Bilbergia Leopoldii.—Foliage from two to three feet long, handsomely variegated with alternate bands of green and white. The flowers crimson, tipped with purple, in long drooping spikes.

B. marmorata.—The leaves long, prettily chequered with brown on the back; stem and large bracts of the flowers bright rosy red, bearing green, blue, and white flowers.

Caladium bicolor.—An old, well-known stove plant, having large heart-shaped leaves, rich crimson towards the inside, and irregularly margined with bright green, giving the plant a striking appearance.

C. bicolor, var. *picturatum*.—Similar to the above, differing in the crimson colour running along the veins in a stripe.

C. marmoratum.—Foliage green, covered with conspicuous blotches of marbled white.

C. pellucidum.—Foliage green, with red spots.

C. pictum.—In this species the leaves are variegated with cream colour on a light green ground.

C. pœcile.—Leaves lively green, with white stripes in the centre.

Calathea pardina. Syn. *Maranta pardina*.—A plant remarkable for fine large foliage, of a rich glossy green, marked with a row of square, violet-black blotches on each side of the midrib of the leaf. The flowers are also very showy, of a clear light yellow.

Cissus discolor.—One of the most elegant of all the variegated plants, foliage rich velvety crimson and mulberry colour, beautifully marbled with pink and white; stems purple-red. A stove climber, requiring to be grown in a moist heat to bring the colours to perfection.

Coleus Blumei. Syn. *Plectranthus concolor picta*.—Pale yellow-green, nettle-like foliage, with a large chocolate-brown blotch, sur-unded with numerous smaller ones, at the base and in the centre each leaf. This plant forms a nice bush when properly treated. e flowers in spikes, small, bluish purple and white.

C. Blumei, var. *pectinatus*.—Differs from the above principally in the form of the leaf, which is somewhat narrower and more pointed, deeply cut with numerous irregular teeth; the chocolate blotches are also smaller. Both should be in every collection.

Croton discolor.—A stove shrub, of free habit, bearing laurel-like leaves, bright, clear green on the upper surface, and bright crimson beneath.

C. longifolium variegatum.—Somewhat similar to the preceding, but with bright yellow and less red colours, and the foliage more pointed.

C. pictum.—Habit very compact. Leaves dark green, interspersed with large blotches of yellow and red, forming a beautiful object.

Dieffenbachia variegata.—Foliage a good green, with a broad white stripe up the centre of each leaf.

Dracæna elliptica, var. *maculata.*—An ornamental stove shrub, or small tree, the leaves dark green, covered with pale round spots. The flowers not very attractive.

D. ferrea.—The leaves of this species are destitute of stripes or mottlings, but are very showy, being dark crimson-purple.

D. nobilis.—This is the handsomest of the genus, and forms another of the most attractive plants possessing ornamental foliage. The leaves are fine and broad, dark purple, crimson, and green, exquisitely feathered and intermixed.

D. terminalis.—Another very desirable species, the foliage being bright crimson, marked with broad bands of scarlet or red; very beautiful.

Echites nutans.—Foliage green, beautifully veined and netted with bright carmine-red.

Elæodendron Indicum.—Up the centre of each leaf is a broad red stripe, the rest being dark green, spotted with pale green or yellow.

E. venosum.—A dwarf shrub, bearing dark green leaves, as in the preceding species, but mottled with intense brown spots.

Gesneria zebrina.—A well-known plant, but on that account by no means to be omitted from my list; the foliage is ample, broad, and spreading, of a rich green, striped with intense velvety black markings or blotches. The flowers also are very handsome.

Gloxinia argyrostigma, var. *splendens.*—Foliage beautifully variegated with white along the veins. Flowers dark blue, with spotted throats.

Gymnostachyon Zeylanicum.—The leaves of this plant have a very singular appearance; the green of the ground-colour is of a dull hue, and along the centre of each is a broad stripe of pale blue, with other pale blue or lead-coloured stripes branching off in a curved direction on each side. The flowers are small, and of no great beauty.

Hoya carnosa, var. *picta.*—Foliage dark, shining green, having a broad yellow belt along the centre of each leaf; a very pretty and distinct variety.

H. carnosa variegata.—Decidedly the handsomest of this tribe for showy leaves, which are green towards the inside, margined with a broad belt of cream colour or straw-yellow, and the young leaves edged and tipped with pink. The flowers are rosy lilac, and flower-stalks pink.

Justicia sebrina.—Leaves velvety green, shaded with purple, and the veins rosy red.

(*To be continued.*)

CHRYSANTHEMUMS.

BY G.

SOW any time in March, April, or May, in pans or boxes, but the earlier the better, and place them in a hotbed, or the stove to start them. As soon as they are large enough to handle, prick them out round the edge of a forty-eight-sized pot (four inch), about five in a pot, and keep them in moderate warmth till they are established again, when they may be removed to the greenhouse or cold frame. The soil in which they are pricked out should be one-third well-rotted dung from a hotbed, one-third loam from rotted turf, and one-third peat, rubbed through a coarse sieve. Here they must have all the air you can give them on mild days, and occasional watering, as the fibres down the side of the pot soon dry, but they must not be watered until the surface is dry. When those in the cold frame are large enough to touch each other, put them in three-inch pots singly, and return them to the frame; water them well, and shut them up close the next twenty-four hours, properly shaded during the heat of the day. When the roots reach the side of the pots, change them to four-inch pots, and when they fill these, change to six inch; they may then stand out of doors in the shade, or, if more convenient, they may be planted in the open ground, the soil being properly made up for them. The object of raising things from seed is to obtain new varieties, but when we have done all we can to save the seed from the best flowers, the great majority of the new ones are worse than the old; and if we have one better in a season, it is fortunate, still we may have many as good as the old ones, and in some particulars different.

The Pompone Chrysanthemum is the favourite now, and as respectable societies are now taking up the Chrysanthemum, it will be more universally grown.

Chrysanthemums at this time of the year, and from now till the end of June, are sent about the country in cuttings instead of plants, and the sooner they are had the better, and the larger the plants will grow by a given time.

The striking of the Chrysanthemum is so simple and certain, that there is only the difference of a fortnight or three weeks in the time of possessing a rooted plant. For long distances, I recommend cuttings of Chrysanthemums rather than plants: first, they are one-third the price of plants; secondly, they are much less carriage; and lastly, they are but a few hours on the road to the remotest parts of Ireland and Scotland, when sent by post; whereas, plants get shattered about for many days, and are often long enough to be damaged for want of light, air, and water. Now, then, is the time to sow seed for new varieties—imported seed, for it cannot be saved in this country one season in a score; and although we must put up with the seed they send us, I have seen some good flowers raised from it. The Pompone is saved distinct from the show or large kinds, and the advantage of raising seedlings is, that they are useful as garden ornaments under any circumstances, while there may be found amongst them some worth propagating.

NOTES ON NEW AND SELECT PLANTS.

ANGRÆCUM SESQUIPEDALE. Nat. Ord. *Orchidaceæ.*—An extraordinary plant, from Madagascar, the largest-flowered Orchid at present known. Dupetit Thouars, in his "History of the Plants of Madagascar and the Mauritius," published in 1822, made mention of it under the above name, and informed us that it inhabits the former island only; that its flowers were very large and white. Since this time the introduction of the plant has been ardently longed for, and we are happy to say the Rev. Mr. Ellis, the well-known missionary, has succeeded in gratifying the horticultural world with three living specimens of this noble plant, one of which has bloomed magnificently at Hoddesdon, during the renewed absence of that gentleman from England. Mr. Ellis states, in a letter to Dr. Lindley, "In regard to the *Angræcum sesquipedale*, I did not see it in the higher and cooler regions of Madagascar, but only in the lower and hotter districts, and there by no means so abundant as the *A. superbum*, which is a splendid-growing Orchid. The *A. sesquipedale* grows generally on the straggling trees along the edges of the forest, or in parts where the trees are only thinly spread over the country. It seemed to grow most frequently on the driest parts of the trunks and branches of thinly-leaved trees, and though occasionally, yet but seldom seen near the ground. The leaves were neither numerous nor large, and in its native state the plant most frequently presented a starved appearance and straggling habit. In this state the flowers were abundant, and deeper in creamy colour, than when growing in the shade. The roots are not matted and succulent, but few in number, long, and wiry, frequently running down the outside of the tree on which it grew, twelve or eighteen feet or more. The flowers last a long time, and are objects of great beauty. The plant at Hoddesdon grows and forms a stem about eighteen inches high, covered with long, leathery leaves, and from the axils of the uppermost appear short, stiff flower-stalks, each bearing three flowers, of nearly *seven inches across*, and furnished with a tail-like spur, about *fourteen* inches long. When the blossoms first open they are tinged with green, except the lip, which is pure white; after a time the green disappears, and the whole resembles white wax. (*Gard. Chron.*, 194.)

50. SYMPHORICARPUS MICROPHYLLUS. Syn. *S. montanus*. Nat. Ord. *Caprifoliaceæ.*—An interesting dwarf, bushy species of Snowberry, from hilly districts of Mexico, whence it was introduced by Mr. Barclay, of Bury Hill, through M. Cervantes, of Mexico. The plant is perfectly hardy, flowering through the greater part of the summer, and bearing in autumn a large quantity of pretty little pink or blush-coloured berries. The blossoms are small, pale rose colour, drooping, and much concealed by the leaves, which are ovate, glaucous beneath, and thickly placed. (*Bot. Mag.*, 4975.)

51. CAMELLIA RETICULATA, FLORE PLENO. Nat. Ord. *Ternstræmiaceæ.*—*Camellia reticulata*, presumed to be a native of China, appears to have been unknown in Europe till about 1820, and flowered in this country for the first time in 1826. The double-flowered variety here described by Sir William Hooker was forwarded to Messrs. Standish and Noble by Mr. Fortune, and though not strictly "double," the flowers have twice as many petals as the ordinary *reticulata*, of a brighter rosy red, firmer texture, and more regularly disposed. They are of a large size, measuring in some cases near six inches across. The foliage is very distinct from that of *C. Japonica*, being strongly marked with network, and of fine size. (*Bot. Mag.*, 4976.)

52. CIRRHOPETALUM MEDUSÆ. Nat Ord. *Orchideæ.*—A strange and curious-looking Orchid from Singapore, whence it was introduced some years ago by Messrs. Loddige. The flowers are small, and closely crowded on a short spike, while the sepals, being very long and narrow, give them the appearance of a head of dishevelled hair, which has induced Dr. Lindley to give it the above name, in allusion to the head of Medusa. The spikes are yellowish green, and the flowers pale sulphur, spotted with minute pink dots, at the base of the sepals and petals. It blossoms in our stoves in winter. (*Bot. Mag.*, 4977.)

53. SONERILA ELEGANS. Nat. Ord. *Melastomaceæ.*—From the Neilgherry Hills; introduced by Messrs. Veitch, of Exeter and Chelsea, in whose stove it has recently flowered for the first time. It grows about a foot high, bearing pretty rose-coloured blossoms, and fine foliage; the former consist of three petals, and measure about an inch and a quarter across. The stamens, three in number, are very prominent, bright yellow, situated on deep red filaments, as is also the style; the leaves are from four to five inches in length, ovate, marked with ribs or longitudinal nerves, the upper side bright een, and reddish purple beneath, where the nerves are prominent;

the leaf-stalks generally are brown or dull purple. No doubt this will prove a desirable acquisition to the stove. (*Bot. Mag.*, 4978.)

54. COSTUS AFER. Nat. Ord. *Scitamineæ.*—A reedy plant, introduced originally by Mr. George Don to the gardens of the Horticultural Society, but, till recently, lost to our collections. In March, 1855, living plants were procured by Captain Selwyn, and are now in the collection at Kew. The Hon. W. Fox Strangways states, "This plant comes from the Isles de Los, sixty miles to the north of Sierra Leone, on the west coast of Africa. It is valued by the natives as a specific in some disorders." The flowers, which are white, tinged with yellow, are produced on stems, two or more feet high, and measure rather more than an inch across the tubular corolla; the leaves are dark glossy green, eight or nine inches long, and nearly half as much across, narrowly acuminate; the apex of the stems has a small crown of leaves. The plant blossoms in the stove in September, after which the herbaceous stems die down till the following spring. (*Bot. Mag.*, 4979.)

55. HOYA GRANDIFLORA. Nat. Ord. *Asclepiadaceæ.*—A new and striking species, lately received from the Island of Nœsa Kambangan, to the south of Java, by Messrs. Rollisson, to whom it was forwarded by their collector, Mr. John Henshall. The flowers equal in size those of *H. imperialis*, but are of a pure white; the foliage is elliptic, and rather downy.

56. HUNTLEYA CERINA. Nat. Ord. *Orchideæ.*—Flowers of a delicate sulphur-yellow, and very showy. This is by far the handsomest of the genus. From St. Paul's, in South America.

57. DENDROBIUM CYMBIDIOIDES. Nat. Ord. *Orchideæ.* Introduced by Messrs. Rollisson, through Mr. Henshall, who discovered it growing on one of the small hills adjacent to Mount Megamendung, in the western district of Java. The flowers are lemon coloured, freely produced in short spikes.

58. DENDROBIUM AMBOINENSE. Nat. Ord. *Orchideæ.*—This pretty close-flowering Orchid owes its introduction to the same gentleman as the preceding species. It inhabits the northern valleys of Amboyna. The blossoms are of a bright rosy red colour, tipped with pale green, and produced up the stem in clusters.

59. ERICA PHYSODES VIRESCENS. Nat. Ord. *Ericaceæ.*—A new and quite distinct species from the Cape of Good Hope, of close habit. The flowers are longer than those of the old and well-known *E. physodes*, which they resemble in form, but instead of being white, as they are in that plant, are a clear, semi-transparent green colour. This species should be in every collection.

60. FAGRÆA MORINDÆFOLIA. Nat. Ord. *Loganiaceæ.*—The flowers of this strikingly handsome new stove plant are trumpet-shaped, of a delicate rosy blush, with a pure white mouth, produced in clusters on long terminal spikes. The foliage also is handsome, resembling that of the Magnolia. We are indebted to Messrs. Rollisson for the introduction of this plant, whose collector detected it in the district

of Indramaya, in the western part of the island of Java. Worthy of a place in every stove.

61. FAGRÆA PEREGRINA. Nat. Ord. *Loganiaceæ.*—From the same locality as the above. The flowers are, however, white; in other respects it resembles the foregoing.

62. VACCINIUM ERYTHRINUM. Nat. Ord. *Vaccinaceæ.* A dense, bushy, evergreen species, with dark green neat foliage, ovate, and thickly set. The flowers are produced in bunches from the axils of the leaves, and are of a fine bright crimson colour. Being found at a height of ten thousand feet above the level of the sea, there can be but little doubt of its being quite hardy with us.

63. MANDIROLA LANATA. Nat. Ord. *Gesneriaceæ.* In this species the leaves are curiously clothed with a soft white down on their under surface, as well as the stems. Their habit also is remarkable, being closely reflexed one upon the other. The flowers are lilac, tinted with purple inside, somewhat like a Foxglove.

64. VRIESIA SPLENDENS. Nat. Ord. *Bromeliaceæ.*—A plant resembling in many respects a *Tillandsia,* but with beautifully variegated foliage. It puts forth a long scarlet spathe, from the coloured bracts of which issue the flowers, of a pure white. This is a handsome addition to an interesting tribe of stove plants.

65. ISOLEPIS GRACILIS. Nat. Ord. *Cyperaceæ.*—An elegant slender-growing Grass, well adapted for growing in fancy baskets, etc. The foliage is long and gracefully drooping; each leaf has a tuft of small flowers at the extremity, giving it a pretty appearance. It requires a stove temperature.

66. BLANDFORDIA NOBILIS. Nat. Ord. *Liliaceæ.*—Well adapted as this is for greenhouse culture, few persons who have seen it in bloom can fail to admire it; when more generally known, we can readily imagine no greenhouse will be without it. The flowers are liliaceous, bright orange and scarlet, remaining in perfection a long time. The foliage is recurved, and resembles a tuft of grass. In habit it is dwarf, not exceeding twelve or fifteen inches in height, and very free blooming.

67. BEGONIA ROSACEA. Nat. Ord. *Begoniaceæ.*—The present, along with the next species, was introduced by M. Linden, of Brussels, through that indefatigable collector, M. Triana. It is a tuberous-rooted kind, sending up fine, rather downy, radical leaves, and bearing large blossoms, of a pale rose colour. Altogether, this variety promises to become a great favourite. It grows in the western Cordilleras of Columbia.

68. BEGONIA MULTIFOLIA. Nat. Ord. *Begoniaceæ.*—Another charming species, covered with a profusion of small, pure white blossoms. It was originally discovered by MM. Humboldt and Bonpland, on the mountains of Quindiu, and has been sent from the same locality by M. Triana.

69. GESNERIA CINNABARINA. Nat. Ord. *Gesneriaceæ.*—M. Linden purposes sending out this new plant early in the autumn, and, from

what we have learned of it, it will no doubt be a great acquisition to a tribe which already numbers so many strikingly beautiful plants. The flowers are described as of a brilliant scarlet, exceeding even vermilion in its intensity, while the foliage also is very attractive, not only on account of its great size, but also for its rich velvety upper side, and the glowing crimson under surface. It flowers from November to April. Introduced from the south of Mexico in June last year.

NEW AND SELECT GARDEN HYBRIDS.

BEGONIA OPULIFLORA MINIATA (Rollisson).—This remarkable hybrid was obtained by crossing *B. opulifolia* and *B. miniata;* the result has been the present variety, in which the bright-coloured flowers of the latter are borne in umbels like the former.

34. Erica æmula (Rollisson).—This is a distinct variety, belonging to the *Massoni* section (in which class are such as have long, tubular flowers); colour bright crimson-red, and of good habit.

35. Erica eximia superba (Rollisson).—Flowers tubular, much larger than those of the parent plant (*E. eximia*), of a bright scarlet; habit very neat, compact and bushy.

36. Erica amabilis (Rollisson).—This is a most abundant bloomer, with large flask-shaped flowers, white, delicately shaded with rose. Very showy and distinct, blossoming from July to the commencement of winter.

37. Azalea Indica, Empress Eugenie.—The colour of this variety is a light rose, the upper petals spotted, large size and excellent form. Its habit is compact and it blooms very freely. Has had the first-class certificate of the Horticultural Society, and a medal.

38. Azalea Indica, Imperatrice Josephine.—Clear cherry colour, upper petals spotted, good form, of free growth and excellent habit.

39. Azalea Hartnelli.—Messrs. Rollisson inform us that the present has proved a very hardy variety. It was selected as the best among some hundreds of seedlings, and may be considered worthy a place in every garden. The flowers are in large trusses, of good size, and distinct from any existing varieties. The top petal is yellow, the others light orange, shaded with scarlet, and each spotted with brown towards the base.

40. Rhododendron pavonium (Rollisson).—A fine and profuse-flowering variety, coming into bloom late. The flowers are deep blush colour, with rich spots on the upper petals, similar to those of a Pelargonium.

41. Rhododendron Stamfordianum (Rollisson).—Perfectly

hardy, late, and a profuse-blooming variety. It is highly attractive, from the bright crimson-purple and intense black markings on its petals. The foliage also is fine.

42. RHODODENDRON PELARGONIÆFLORUM (Van Houtte).—A splendid showy hybrid, of excellent habit. The blossoms are pink, shaded with yellow, and most beautifully spotted.

FLORICULTURAL OPERATIONS FOR MAY.

IN THE FLOWER GARDEN.

GENERAL OPERATIONS.—*Bedding plants*, put out as soon as ever the weather appears favourable. *Beds and borders*, attend to sedulously, keep clean, and fill up vacant places with suitable plants. *Caterpillars, grubs, and other noxious insects*, if not exterminated as much as possible, will come forth in increased numbers, and give much trouble; look to Roses especially. *Cuttings* of several things may be put in at the commencement of the month, in showery weather, as *Double Wallflowers*, *Pansies*, and *China Roses;* the latter require a shady situation. *Edgings*, keep neat, and repair *Box* where deficient. *Grass and Lawns*, as last month. *Gravel*, roll frequently. *Soil*, the surface of beds and borders must be frequently stirred with the hoe, this not only helps to keep down weeds, but is very beneficial to the plants. *Sticks, pegs, and labels*, for the plants, must be attended to, and the plants tied up as they increase. *Watering*, in dry weather never neglect it; the growth of the plants absolutely requires attention to supply them with food, which they can only receive in a liquid form. *Weeds* will spring up faster than ever, if not prevented.

CULTURAL DEPARTMENT.—*Alpines*, remove all weeds running over the rockwork amongst them; check such as may be spreading too far and intermix with each other. Those in pots should be watered regularly, and delicate sorts sheltered from heavy rains. *Annuals* may be sown for a succession; thin out and transplant. *Antirrhinums*, turn out any desirable varieties, and prick out seedlings. *Biennials and Perennials*, may be sown for next year's bloom. *Bulbs*, the situation of such as have died down in the border should be marked with sticks or labels; take up and divide those that require it. *Carnations and Picotees*, stick them, if not previously done; top-dress, and keep watered. *Seedlings*, towards the end of the month, when about three inches high, transplant them into large pots or boxes, filled with rich turf-mould or loam, placing them five inches apart; give them a southern aspect and occasional waterings, but take care to avoid wetting the foliage. *Cobæa scandens* and *Calampelis scaber*, turn out about the beginning of the month in a border of loam, rotten dung, and a little sand. They should be trained against a trellis, which they will cover to a great extent. *Dahlias*, the plants in forty-eight-sized pots have ample room for continued growth, so that there is not any necessity for risking them in the open bed at an earlier period than the last week in May, when danger from frost is over. The plants will then be strong, stiff, and robust; they must be turned out carefully, and the outside of the ball of roots rubbed carefully by the hand, to loosen the exterior roots. The holes for receiving them must be made much larger than the ball of roots, and some good compost, composed of manure, loam, and bone-dust, be mixed with the soil thrown out; after putting in the plant fill up firmly, and water, to settle the soil and start the plants. It will be necessary, should the weather prove dry, to water them copiously in the evening; soft water is far better than any other. *Gladioluses*, when they are about a foot high, should be carefully staked, and watered occasionally. *Hollyhocks*, towards the end of the month, lay a good sprinkling of manure over the roots, and two or three feet around the plants, to keep the soil cool and duly moist. Attend to thinning the shoots, and water well, occasionally with liquid manure. *Lobelias, herbaceous*, plant out in beds, in rich soil; they will bloom in July, and continue throughout the summer. *Nicotiana*, plant out also, in leaf-mould and well-rotted cow-dung; they will flower handsomely at she same time as the preceding. *Pansies*, give due attention to watering. Plant out seedlings sown in March. *Pinks*, commence watering with liquid manure once a week, taking care not to pour it over the foliage. *Polyanthuses*, as they go out of bloom, take up, part, and plant in a shady situation. Gather seed, and sow in pots or boxes. Prepare compost for potting in. *Ranunculuses*, look over the beds, for they are liable to destructive insects, and protect the plants, when in flower, from the sun and rain, which injure their colour. During bloom water every night, but cease to water when on the decline. *Roses*, cuttings put in last September will be ready either to pot off, or plant out in beds; after planting, shade from sun and cold drying winds. Stocks must be looked to, and all superfluous buds removed, leaving only three or four at the top to form the head on which to bud. Keep down green fly. *Stocks*, *Queen*, sow the beginning of this month; it should be done on a border of light sandy soil with an eastern aspect, never south, as this would be too hot for them. Sow very thinly in shallow drills, six inches apart; water in the evenings. *Tulips*, when in flower, shade with canvas during rain, and from nine till four o'clock in case of sun. By this means the duration of blooming is prolonged. As soon as the bloom is over, the seed-vessels should be cut off. *Verbenas*, harden off stock for bedding, and towards the middle of the month plant out; fumigate before this is done. *Wallflowers*, sow for September bloom.

IN THE GREENHOUSE, COLD-PIT, AND FRAME.

General Operations.—*Air*, admit when the weather permits, and, towards the end of the month, all night slightly, increasing by degrees. *Cuttings* will now root readily in bottom heat. *Seedlings* should be pricked off before they get weakly. *Shade* plants in flower. *Shift* such plants requiring it, as soon as ever the pots are full of roots. *Stop*, as directed last month. *Surface soil* in pots must be frequently stirred, the plants turned round, and kept at a proper distance from each other, to promote health and vigour. *Water* will be plentifully required now by most plants in a growing state. Keep the plants, pots, and entire erection neat and clean.

Cultural Department in the Cold-pit and Frame.—*Annuals*, *tender*, may still be sown for succession. *Auriculas*, the cooler they are kept, the longer they remain in bloom. Unless seed is wanted, cut down the flower-stems as soon as the bloom is over. Keep them clear of green fly. *Balsams and Cockscombs*, sow, or pot; the former require more air and less heat than the latter. *Bouvardias*, air may be freely admitted, and in a week plant out. *Chrysanthemums*, last month's directions may still be carried out. *Mignonette*, *tree*, sow in small pots; when the plants make their appearance, select the strongest one in each pot, pull up and throw away the rest. *Pentstemon speciosum*, pot into sixty-sized pots, in a compost of loam and well-rotted cow-dung. They should be placed in a close frame for a few days, till recovered from potting, then give a free admission of air to harden off the plants. *Polyanthus tuberosa*, plant for autumn bloom. *Primroses*, *Chinese*, shift the plants as they fill the pots with roots, and remove them to a lower temperature, to inure them to the open air. *Salvias*, propagate for blooming in autumn and winter; seed of *S. patens* may be sown. *Stocks*, *and other half-hardy plants* for succession, may now be sown. *Verbenas*, harden off for bedding, and plant out nine inches apart.

Cultural Department in the Greenhouse.—*Achimenes* may be brought in. *Azaleas*, attend to stopping and training young plants; when specimen plants go out of bloom, nip off the seed-vessels, and shift such as require it. *Calceolarias*, refer to last month's treatment. *Camellias*, give occasional supplies of liquid manure, and keep a tolerably high temperature, to promote the formation of flower-buds. *Cinerarias*, seed may be saved from the best, and some of it sown at once, and the plants will bloom about the middle of winter. Set the plants out of doors when bloom is over. *Ericas*, *Epacrises*, etc., attend to watering. *Fuchsias*, repot for larger specimens; attend to last month's operations. *Lilium lancifolium* may be introduced; keep well watered, never allowing them to flag. A sprinkle over-head is of great advantage. *Pelargoniums*, the instructions given last month still apply. Shade those which, being early. have come into bloom. Bees must be excluded the house when Pelargoniums are in flower, if you wish to prolong the bloom. *Roses in pots*, keep well watered.

IN THE STOVE.

General Operations.—*Air*, admit to keep the temperature down to 70° by day, and 60° at night. The *atmosphere* must be kept moist, by sprinkling the walks daily. *Baskets*, *vases*, etc., may be filled with suitable plants, see last month's directions. *Cuttings*, take off, and prick in sand in bottom heat. *Insects*, use every means to keep them down. *Potting*, continue to repot young plants, to bring them on. *Syringe*, use freely, but avoid those plants which are in bloom. *Watering* requires due attention. *Weeds*, let none be seen; keep everything neat and tidy. *Winter-flowering plants*, cut them down, repot, and start them into growth.

Cultural Department.—*Achimenes*, give water freely to those advanced in growth, and support the weak ones with sticks; pot. *Amaryllis*, water freely those coming into bloom; others going out place in a close pit for a time to ripen the bulbs. *Gardenias*, give water more sparingly, and place those out of flower in a cold-pit. *Gesnerias*, *Gloxinias*, etc., syringe daily this class of plants; repot. *Ixoras*, see last month's directions; young plants may be placed in bottom heat to forward them. *Justicias*, cut down, repot, and place in heat to start them. *Lycopods*, divide, and repot. *Oleanders* will flower more freely if placed in pans of water. *Orchids and Succulents*, those growing freely may be well watered. *Orchids* for exhibition should have their flower-stems tied out, to make a handsome appearance. Those in bloom should have the blossoms kept dry, and may be removed to a lower temperature with benefit.

QUESTIONS, ANSWERS, AND REMARKS.

Hovea Celsii and Illicifolia.—I shall feel much obliged if any of your correspondents will give me particulars of the best method of treating these plants.—*A Subscriber, Teston.*

Horticultural Society, *April 7th.*—A meeting was held this day, J. Blandy, Esq., in the chair, when twenty-four new members were elected, and an interesting paper read on heating horticultural erections. The display of plants exhibited was unusually fine, comprising Camellias, Roses, Azaleas, Cinerarias, Orchids, and other flowering plants, together with some fine fruits. Of Roses, were blooms of General Jacqueminot, bright scarlet-crimson; Gloire de Dijon, yellow and salmon; Vicomtesse Decazes, yellow; Mrs. Siddons, yellow; Devoniensis, delicate sulphur and white; a bouquet of the pale yellow Rose ochroleuca, from Mr. Snow, gardener to Earl De Grey, was much admired, and was stated to have been gathered from a plant in a pot bearing upwards of forty blooms. A new climbing Tea-scented Rose of a deep yellow colour, from South Carolina; it had upwards of forty blooms on it, large and very double, and promises, from all we have heard of it, to occupy the place of the old, but difficult to flower, double yellow variety; it is named Isabella Gray. Mr. Turner sent some fine and beautifully bloomed specimens of Cinerarias, comprising Lady Camoys, Delight, Optima, Emperor of the French, Sir C. Napier, Earl of Clarendon, Ruby, and Lord Palmerston; also the following excellent seedlings: Mrs. Hoyle, fine form, crimson-purple edge; Baroness de Rothschild, fine shape; Regalia, resembling Ruby, but better; Lady Augusta Vaughan, large, and remarkably showy; Prince Albert, crimson-purple, good form and habit; Prince of Wales, good shape. Another seedling from Mr. Bones, of Woodford, called delicata, was also shown. Of Orchids, there were some very fine specimens, the most remarkable being a large and well-grown Dendrobium densiflorum, nearly three feet across, and covered with large bunches of its most attractive yellow blossoms; Mr. Lawrence, gardener to the Bishop of Winchester; the exhibitor was awarded a first-class prize for it. Messrs. Veitch exhibited a beautiful collection of this lovely tribe, as did also Messrs. Jackson, of the Kingston Nursery. Mr. Parker, of

Hornsey, forwarded a handsome new Cypripedium, covered with long hairs, and Mr. Warner, a scarce Dendrobium, named lituiflorum, together with Oncidium bifolium, a yellow species. Messrs. Henderson, of Pine Apple Place, exhibited a good collection of early Tulips, Hyacinths, and miscellaneous plants. A rare and very attractive bulbous plant from Messrs. Veitch, named Griffinia Liboniana, excited considerable interest from the brilliant blue tips of its petals, as well as its rarity. From the same gentleman came also two Epacrises, a white Ixora, and the handsome Acacia Drummondii. Cut flowers of Hexacentris Mysorensis and Canna Iridiflora were shown, from Mr. Snow, and collections of miscellaneous greenhouse plants from Messrs. Lee, of Hammersmith, and Messrs. Cutbush, of Barnet. Lady Dorothy Neville sent some exquisite specimens of anatomized leaves, beautifully prepared and decorated with coloured designs. Cones of the new Larch from China, Abies Kæmpferi, were exhibited, and a paper concerning them, from Mr. Fortune, was read, who states this tree forms a very picturesque object in Chinese landscapes, from the lively green of its leaves and cones in spring and summer, as well as the decided yellow tints they wear in the autumn; with the Celestial nation it goes by the name of the Golden Pine. The Society's garden produced a number of subjects of exhibition, including specimens of the double white Chinese Peach, Forsythia viridissima, a red hexangular Camellia, and other good things.

ACROCLINIUM ROSEUM.—This beautiful annual should be sown in heat, and, when large enough, pricked out round the edges of four-inch pots, and grown in the greenhouse till strong enough to pot singly in three-inch pots of light rich soil. When these fill with roots, let them be exchanged to four inch and onward, till they are in six-inch pots, in which they will form very fine objects. Some, however, may be advantageously planted out in the borders or in beds, and if this be deferred till June you will be more likely to save seed, for it will give two chances instead of one. Like *Rhodanthe Manglesii*, it may be sown in March, April, or May, or in all three months, for a succession, or it may be sown now in the open air, if you are careful not to leave it uncovered, and avoid sowing it too deep. It is more to avoid this, than through any other reason, that choice things are sown in pans, pots, or boxes; the seed can then be sown and covered exactly as much as we like, and with valuable seeds it is an object to make every one grow. We are indebted to a German grower for these hints as to the culture of this popular annual, and we wish it were more generally the practice than it is to give directions for the culture of all the new seeds sent out.

CALAMPELIS SCABER.—I have successfully propagated this plant for some years as follows. During the month of January, I place an old plant in a vinery or hotbed, so as to induce it to break, and as soon as the shoots are three inches long, take them off, with a small piece of old bark adhering to the cuttings. I place them in light vegetable mould and sand under glasses; they quickly strike root, and will be fit for potting in a month. The best compost consists of loam, well-decomposed manure, and leaf-mould, in equal parts. Thus raised, the plants flower well the first year, while those from seed will not blossom until the second. Seed requires to be sown as soon as ripe, and if placed in the greenhouse, or frame, the young plants will be fit for potting off in April. —*D. B.*

ON RAISING THE CALCEOLARIA FROM SEED.—The pots for sowing in should be filled half full with drainage, over which lay the rough siftings of the soil to be used, and fill up the pots to within an inch of the rim with very fine-sifted rich garden soil and silver sand, in equal proportions. A gentle watering with a fine rose should then be given, and immediately after sow the seed very thinly, not covering it with any soil. Place the pots in a close frame or under a hand-glass in a shady situation; it is much better not to give any artificial heat. Carefully avoid any exposure to the sun, by shading with brown paper or mats; for if the soil becomes dry after the seed has commenced germinating, it is sure destruction to the plants. If the situation is of the proper temperature, water will be very seldom required. As soon as ever the seedlings are strong enough to bear pricking out, prepare pots as for seed, and carefully transplant and place in the same shady situation as before; from these store pots they will soon require to be potted off singly, and will be found to grow very rapidly. During winter, the plants will succeed best on the shelves near the glass in the greenhouse; and if kept freely shifted until the flower-stalks appear, they will make fine blooming specimens.

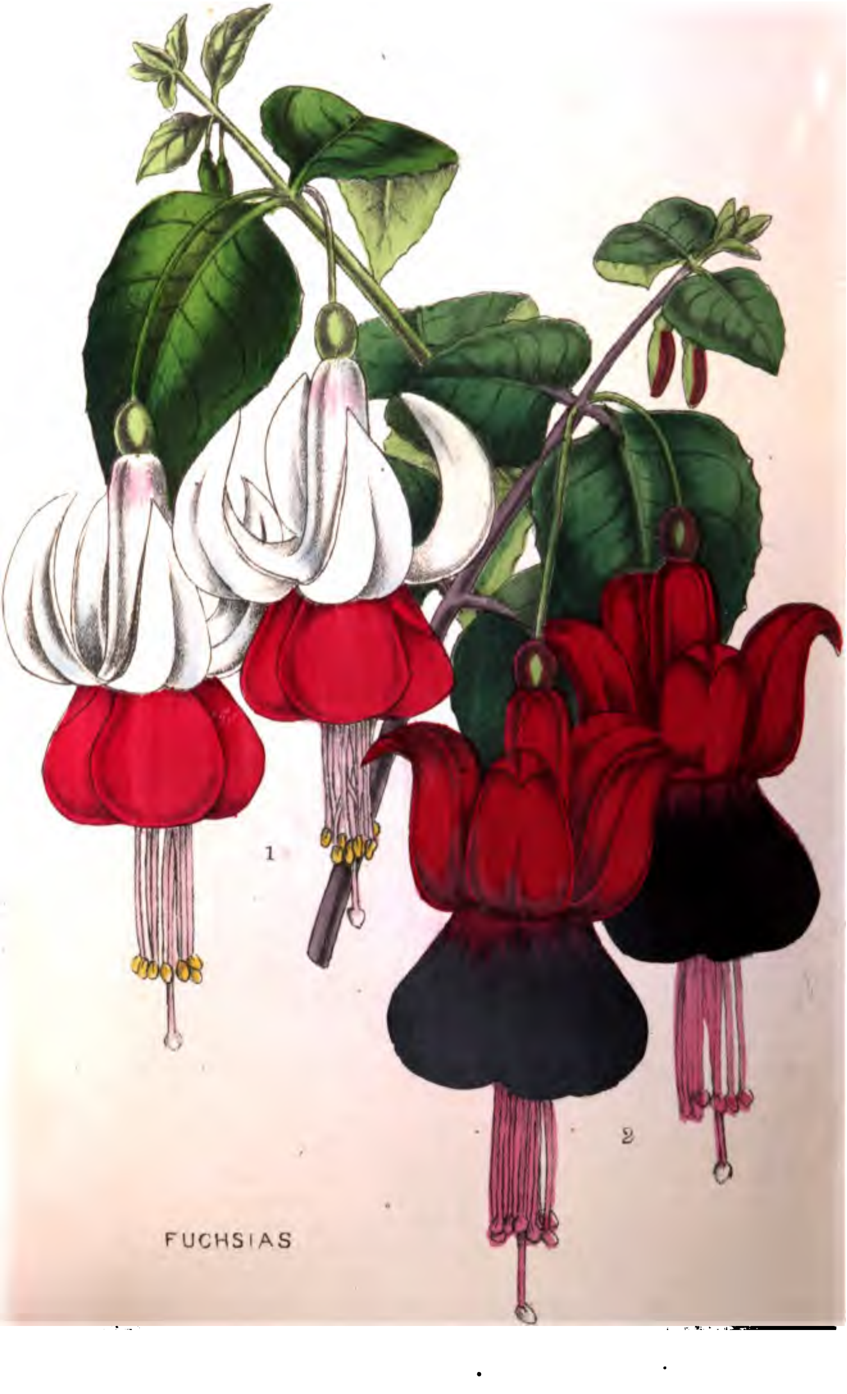
Never omit fumigating immediately the green fly appears, as they are sooner affected by this pest than any other plant. One of the most frequent causes of this insect is, allowing the plant to become pot-bound, therefore attend to repotting.—*L. Davis.*

CHRYSANTHEMUMS.—The following descriptive list of a few of the finest Chrysanthemums may prove of service to the amateur; the sorts enumerated are the best of their class, and may be depended on. *Twenty-four Show Chrysanthemums.*—Alfred Salter, a fine large flower, nicely incurved, rosy lilac. Annie Salter, one of the finest globe yellows. Aregina, large, and well incurved, amaranth-maroon. Albin Gondereau, fine, early, and well incurved, bright plum-crimson. Anaxo, large, and well formed, early bloomer, orange-red. Beauty, fine show flower, incurved, peach-blush. Christophe Colomb, crimson-violet, incurved. Defiance, very pure white, a fine incurved flower. Dupont de l'Eure, carmine-orange, very finely incurved, a constant flower. Elizabeth, clear white, incurved. Formosum, light yellow or primrose, good form, incurved, early. Golden Cluster, fine yellow. Hermine, blush, with carmine-purple tips, early, beautifully incurved, extra. Irene, blush-white, a nice flower. Leon Lequay, lilac-purple, incurved, very fine. Le Prophète, clear yellow, fine form. Lycias, orange-red, incurved, fine form, but a late bloomer. Madame Furtado, incurved, white and rose, a nice flower. Madame Lebois, creamy pink, a fine incurved flower. Madame Andry, rosy blush and lemon colour, incurved, and very fine. Plutus, bright deep yellow, incurved, extra. Queen of England, blush-white, incurved, very fine, early. Rosa Mystica, rosy peach, fine. Themis, clear rose colour, incurved, extra. *Twelve Pompone or Minima Chrysanthemums.* Aigle d'Or, light yellow, neat form. Apollon, fine clear yellow, full flower, but late bloomer. Aurore Boréale, deep orange, extra. Bijou d'Horticulture, fine creamy white, good. Brilliant, orange-red, free, good early flower. Cedo Nulli, a very neat white, early. Duraflet, rosy lilac, very double, extra. Eliza, amber colour, very dwarf and double. Indiana, deep rosy red, full flower, early. Riquiqui, deep purple-crimson or plum colour, very distinct, extra. Sainte Thais, cinnamon-buff, with orange centre, full flower and neat form, early. Zebra, lilac mottled, with light centre, distinct and fine.—*D. K.*

TO DESTROY WORMS ON GRASS LAWNS, ETC.—Of the many methods which have been recommended for destroying worms, I have found corrosive sublimate the most efficacious. By means of it I cleared a piece of grass from which it seemed almost impossible to eradicate the worms, the surface of it being always covered with casts, and looked most untidy; but for eighteen months after this was applied, scarcely a single cast was to be seen. I use the solution of the corrosive sublimate, of the strength of one ounce to forty gallons of water, having dissolved the sublimate first in a little hot water, and thoroughly mixed it. The requisite quantity of each being prepared, the whole should be well stirred together, and commencing at one end of the lawn with the watering-pot, without a rose, let the surface be entirely flooded; if any part of the ground is missed, the grass will soon be as bad as ever with the worm-casts. Directly after the solution has been applied the worms will make their appearance, which I have always picked up. The dose may be made sufficiently strong to kill them on the surface, or even in the ground; but this is attended with danger to the grass, particularly on light soils. I therefore consider picking them up the best. If possible, the ground should be gone over a second time, after an interval of three or four days. Attention should also be paid to the state of the ground, which should neither be soaked with rain nor parched up with drought, but in a middle state. Great care is at all times necessary in using this deadly poison. It is also useful in destroying slugs, etc.—*W. Dawson.*

PARCHMENT LABELS.—To restore the faded names which are often to be found on parchment labels, and which may be apparently gone for ever, nothing more is necessary, when they have been written with *ink*, than to rub over them a little tincture of galls, with a small brush, when the blackness will be restored, and they may be easily read. This may be useful to some among your many readers.—*Tyro.*

HEATHS FOR EDGINGS.—As remarked by one of your correspondents, no one can form any idea, unless they have seen it, of the pleasing effect produced by the adaptation of that truly beautiful British plant, *Erica vulgaris*, to the formation of edgings. The edging should be made from eight inches to a foot in width, and occasionally clipped flat; the plants will then flower profusely.—*J. Towers, Aldon.*



FUCHSIAS

The Floricultural Cabinet.

JUNE, 1857.

ILLUSTRATIONS.

FUCHSIAS.

No. 1. Fair Oriana. No. 2. Etoile du Nord.

WE are indebted to Messrs. E. G. Henderson and Son for the opportunity of figuring the two above-named new varieties, both raised by Mr. Banks, who has been so successful in hybridizing the Fuchsias, and of whom the above respectable firm purchased the stock, along with that of others, all of great merit. Fair Oriana is an excellently formed flower of the light class, an abundant bloomer, very dwarf and spreading in its habit, the light scarlet corolla contrasting beautifully with the pure white sepals. This will, no doubt, prove a favourite. Etoile du Nord is an erect-growing variety, more so, indeed, than many of Mr. Banks's seedlings; the rich deep plum colour of its corolla we have seldom seen exceeded, the petals are well exposed by the sepals recurving upwards, and are of good size and substance.

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STOCKS AND ASTERS.

BY G., MIDDLESEX.

THESE two annuals are grown by everybody, and there are not two better qualified to gratify the cultivator; but they must get good seed, for neither of them are worth the room they occupy if they are second rate. It has been said, by very old and experienced gardeners, that the manner in which they are cultivated has a good deal to do with the doubleness of Stocks, and that if they are kept growing free from the time they are up to the period of bloom, the greater part will come single. I cannot say I have ever tried this, because my very early lessons were to starve them until the time of planting out, and to keep them very dry; in fact, I have always kept them without water, after they had six leaves, until the lower ones turned colour, and then planted them in good rich soil. I have always been fortunate; but in the saving of seed I have been always careful to cut off all the growth and bloom as soon as a few bottom pods have begun to swell, and thus to drive all the vigour of the plant into those few pods. I have a strong notion that this is the only way to secure a goodly proportion of double ones. But there are several points worth attending to in the management of Stocks and Asters, and none more important than in the mode of planting out. Asters, if planted in loose ground, just as it is dug up, will generally curl on the leaf, and Stocks rarely do well; the ground should be trodden down hard all over the bed, and then it may be raked smooth and lined out, Asters a foot apart every way, Stocks nine inches; and in planting these out, an iron-shod dibble must be used, and the earth closed firmly upon the root, the dibble leaving a hole on the side, so that in watering it is filled. The plants make but little move the first few days, but afterwards grow rapidly until they come into flower, and then it is that, if we want to save seed, we must sacrifice in some degree the appearance of the Asters, because the crown blooms are the only ones to depend on, and the side ones should be all cut off; besides, not one of these crown blooms should be saved that is not full to the centre. The entire value depends on the doubleness, so that any deficiency in the centre is fatal. With regard to the Stocks, the loss of the single flowers is nothing; so that directly a few of the bottom pods are set, cut off all the upper part of the spikes and remove all the side growth, the seed will be much finer, and, so far as my experience goes, much better. In growing intermediate Stocks for potting, sow in July, in the open ground, and when they have four or six leaves, prick them out in four-inch pots, about five in a pot, of clean loam, close to the edge; when done, give them one watering and put them in a cold frame, with a very dry, hard bottom, that the superfluous water may run away when they are watered; but keep them without water till they exhibit a real want of it, then wet the soil well all through, and let them have no more till they flag again. They will not grow much in the winter, but they will show their bloom early in the spring. As soon as any one in a pot of five shows flower-buds you can see whether it be single or double. If a double one shows, turn out the ball of earth whole and squeeze it out, without disturbing the others, return the ball to the pot, and fill up the hole with soil. In this way you may, from a quantity, pick out a few double ones every three or four days; let those double ones be potted singly in four-inch pots of good rich soil, say two-thirds loam from rotted turves, and one-third decomposed dung from an old bed. Put them in a cold frame by themselves; let them have abundant air and free watering, for they will grow rapidly, and want it; they will attain a good size before blooming, and quite fill their pots. Ten-week Stocks for early blooming must be saved just the same; if you want all double in pots or in a bed, you must let them be starved till they show their buds, when they may be potted singly till the time of turning, simply regulating the time of sowing according to the period you want them to bloom. Mr. Hopwood, of Twickenham, who was famed for his double Stocks, used to insist that if they were sown when the moon was decreasing, they would all come single; and if sown when the moon was increasing, they would come double, and the old gentleman would never be persuaded to the contrary. But although every cultivator acknowledges that there is a great mystery about Stocks, few either believe that the moon has any influence on them, and perhaps still fewer think it worth while to try the experiment. This year the intermediate Stocks, in many localities, come so generally single that they may be said to be a total failure; not half a dozen double in a whole light, certainly not one in ten. The whole time therefore bestowed on potting singly was lost, besides their taking up considerably more room. I should like to hear whether this fatality is general. I have it from half a dozen noted growers that they never remember such a general failure.

ON THE PROPERTIES OF THE AURICULA.

BY AN EXPERIENCED CULTIVATOR.

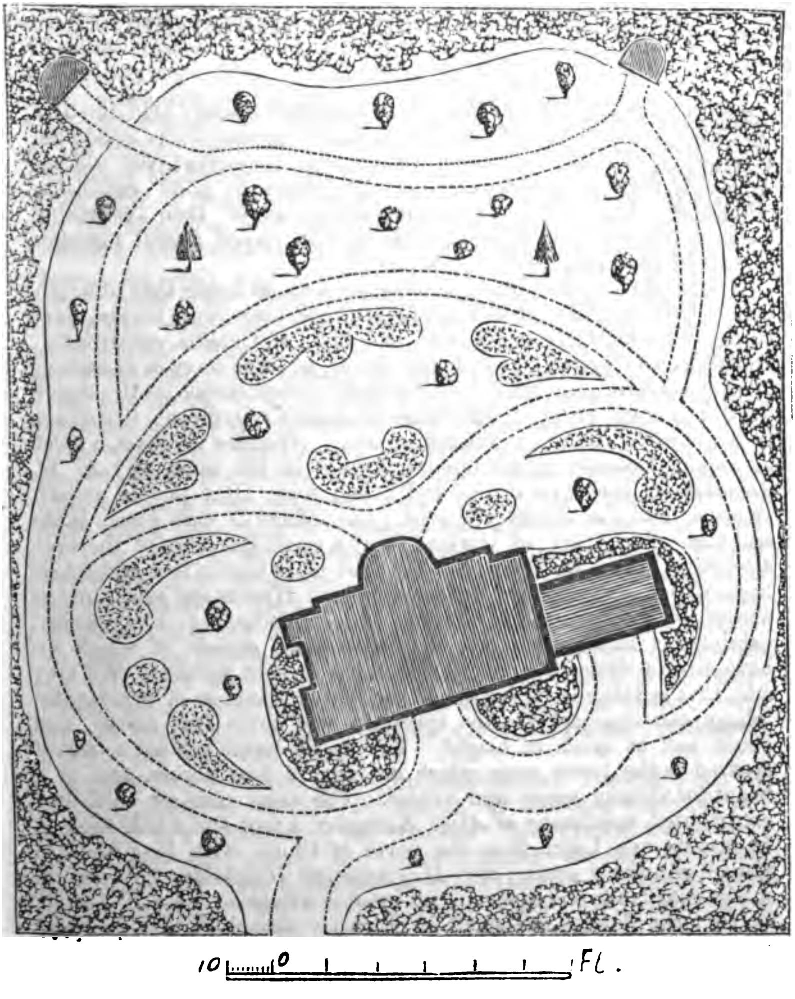
AS there appears to be a little diversity of sentiment among growers of favourite florist's flowers in different parts of the country, it would be well to settle this, by fixing a systematic plan of coming to a just conclusion as to the merits of the various flowers in question, by laying down, by mutual consent and agreement, the most essential properties of first-rate blooms of each class. Having given my almost undivided attention to the Auricula for many years, I may be permitted perhaps to state what I, in common with several good judges, consider should constitute the properties of *a good* Auricula. The first essential property is, doubtless, form; for however pleasing or agreeable the colour of any florist's flower may be, without excellence in this respect, it must be regarded as worthless; beauty and correctness of form and outline are what the florist aims at, and it is this which principally distinguishes a hybrid of universal acceptance from a species; and although the botanist, strictly so called, may consider such flowers as monsters, yet to the eye of taste it is pleasing to have a chaste and symmetrical form combined with other excellences, as may be seen in a choice florist's flower; it is the endeavour to excel in this particular to which the energies of the true florist are directed, and which has given rise to the many beautiful hybrids of our time. In this there appears to be a continual progress, not that it is even probable that the standard laid down by good judges will ever be altogether attained, but the approach to this mark is visible from year to year. In the Auricula, the shape of the corolla and proportion of the tube should first be considered, as, however excellent in other respects, a notched or undulated margin is a drawback, which no brilliancy or clearness of colours can atone for; the same may be said of a disposition to cup, instead of the petals laying even and flat, without which the chief beauties of the otherwise fine bloom are lost. In some flowers we find a tendency to crack in the paste towards the tube; in others, the anthers shrink, leaving a hollow centre; in others, again, the tube may not be perfectly round, —all which defects must be considered serious drawbacks to the perfection of form; besides which, accidents to blooms, caused by the carelessness of the exhibitor (although by no means lowering the *prestige* of the individual variety, being fortuitous injuries), as bruises and the like, would of course disqualify such blooms for a prize. As to colour, depth and intensity must have the preference, when other points are equal, to that of a dull appearance; the more distinct the margin, the purer the white, and the darker the ground or body colour, the greater will be the merit of the flower, especially where the tints are clearly portrayed. Harmony, or the best distribution of colour, is another point to which I must call attention; on taking into consideration the proportions of colour, a good judge will give preference to those blooms in which the paste, the ground-colour, and the white, grey, or green edge are distributed in the most equal proportions; that is to say, the nearer the distance between the tube and the inner margin of the deep band approximates in measure to the band itself, the finer are the proportions; too great or too little width in this respect destroys the symmetry of the flower. Uniformity in size of the pips is another essential in a good truss of bloom, nothing looking so awkward as different-sized flowers in the same truss, or where some blooms have precedence in flowering over others. In size, medium pips come best in general; although, of course, a large flower must be preferred, where other properties are the same. A strong, upright stem is an additional merit in a fine flower, and an evidence of good management in cultivation. Where plants are exhibited in pots, this can always be seen, but not properly if shown in bottles, as is frequently the midland county practice. The number of pips in a truss varies according to the locality, seven being considered requisite in the neighbourhood of the metropolis; in any case, not less than five should be considered sufficient, unless with seedlings of the first year's bloom, when three pips should be regarded as the smallest admissible number.

Selfs, or those Auriculas with one colour (except the eye), may be judged by the same principles as to form, uniformity, size, etc., although a somewhat larger eye is in this class a desideratum.

In various districts different systems of exhibition are practised. In the south it is usually the custom to show in pairs; in other parts they are exhibited in classes, etc.—all which are matters of taste; yet it is desirable that some uniform practice were adhered to.

DESIGN FOR THE GROUNDS OF A SMALL VILLA RESIDENCE.

BY. T. RUTGER, ESQ.



THE annexed design is intended for a small villa residence, comprising somewhat less than an acre of ground. The trees and shrubs on the lawn should be of the most choice kinds, and the clumps may be disposed of with flowers in masses, or otherwise, as taste may direct. Sites for two covered seats, or for alcoves, may be seen in the corners, at the farther end of the plan.

ROYAL BOTANIC SOCIETY'S EXHIBITION, REGENT'S PARK.

ON the 20th of May, this excellent Society held its first exhibition of this season, and it proved a very good one. The attendance of visitors was very great, the competitors numerous, and the plants in good condition. Under the able superintendence of their estimable curator, Mr. Marnock, the grounds also displayed skilful management and good keeping.

Of *new plants*, which class we mention first, as being that to which a more than ordinary interest always attaches, there were several good things, to which Messrs. Veitch and Son, of Chelsea, contributed. *Rhododendron Veitchi*, an immense flower, as large or even exceeding *R. Edgeworthii*, pure white, with a slight yellow streak on the upper petal, the edges crimped, like those of *Azalea crispiflora;* it appears to be, however, but an indifferent grower. *Gesnera Miellezi*, a most abundant bloomer, producing its flowers in the same way as *G. Donckelaeri*, each two inches and a half long, light purple, mouth crimson, and the throat yellowish; the foliage is dark green, large and fine. Mr. Ivery, of Dorking, sent a small specimen of the very attractive *Viburnum macrocephalum*, not more than a foot and a half high, with a large head of blossoms, like an *Hydrangea*, seven inches across, of greenish white flowers. Mr. Glendinning, of Chiswick, exhibited a handsome specimen of *Farfugium grande*, of which we have given a description and figure in the present number. We may add, that nothing in the class of variegated plants or of ornamental foliage can approach it; the specimen was three feet across, and about half as much in height. The upper leaves are not so richly spotted as the lower ones, which are near a foot across, and of a beautiful shining green and yellow. The same eminent cultivator contributed specimens of *Abies Kæmpferi*, a foot and a half high, a handsome new Larch from the north of China, with long graceful foliage of a lively green; also *Didymocarpus Humboldti*, not strictly a new plant, but one deserving of greater attention than it has received; the flowers are small, of a pretty lilac-blush tint, on stems six inches high. Messrs. Cutbush and Son had *Genetyllis Hookeriana*, from Western Australia; flowers dull orange-red, the petals curling back when old, when young, tubular; the leaves dark green; a free-blooming plant. A new forcing Pelargonium, named Blanchfleur, a very free bloomer, white, with a small rosy purple spot in the upper petal, but wants form; however, for early forcing it will prove useful. Messrs. Lane and Son showed *Rhododendron Edgeworthii*, pure white blossoms, four inches in diameter, and *Rhododendron sulphurea*, dwarf plants, about one foot high, flowering freely, and although small, the blossoms are very pretty, creamy yellow, with deep yellow spots. Mr. Green, gardener to Lady Antrobus, had *Tetratheca ericifolia*, a native of Australia, a foot and a half high, covered with lilac-pink blossoms, having a small maroon centre. Messrs. Standish, of Bagshot, sent *Rhododendron limbatum*, the ground-colour blush, each petal margined with crimson, very distinct and beautiful, the heads rather small, but blossoms individually large. Messrs. Frazer, of Lea Bridge, had several good things, especially *Azalea*, *Eulalie Van Geert*, shaded blush, with white edges, rosy carmine spots in the upper petal, of fine substance and smooth outline; *A. Indica magnifica*, var. *alba plena*, with semi-double, pure white flowers, a very free bloomer; *Rhododendron roseum floribundum*, a very free bloomer, adapted for early forcing, the flowers rosy carmine, with small maroon spots. Mr. Parker, of Holloway, exhibited a new *Cattleya* from Brazil, pale blush, with a bright purple lip, the flowers three inches across. Messrs. Jackson, of Kingston, also sent two interesting Orchids, one a variety of *Oncidium pulchellum*, with small petals and sepals, blush spotted, the lip large, white with a slight tinge, and yellow in the centre; the other *Cypripedium sp.*, from Assam, the upper petal brown, edged with green, the side petals brown towards the centre, shading off to purple at the sides, the "slipper" pale green, with fine brown veins. Mr. Gaines, of Battersea, had a large plant of *Rhododendron aureum*, from four to five feet high, covered with numerous heads of pale sulphur-coloured flowers, the upper petals spotted with a deeper tint, promising to be a good acquisition. Messrs. E. G. Henderson, of Wellington Road, forwarded some new and rare Conifers, as *Cupressus Lawsoniana*, *Chamæcyparis thurifera*, and others. The collections of *Orchids* were very good generally. Mr. Clarke, gardener to C. Webb, Esq., of Hoddesdon, gained the first prize for a collection of twelve, which included *Dendrobium nobile*, *D. tortilis*, *Cattleya Mossiæ*, *Phalenopsis amabilis*, and other fine species.

Roses in pots were fine, especially from Messrs. Lane and Son, of the Berkhampstead Nursery, well grown, at least five feet high, and pyramidal, in a collection of ten varieties. Mr. Francis was second. *Azaleas* were well grown, and nicely bloomed; the best were from Mr. Turner, Mr. Bray (gardener to Baron Goldsmid), Messrs. Peed, Taylor, and Ivery. Mr. Bray, in his collection, had *Prince Albert*, a fine orange-scarlet; Messrs. Ivery *Duke of Devonshire*, fine shape, light red; Mr. Turner *Purpurea arborea*, a very large flower, bright purple, with crimson spots; *Optima*, orange-red, fine substance; *Beauty of Sunning Hill*, salmon-rose, semi-double. Mr. Taylor had *Triumphant*, a clear satin rose, spotted with carmine.

Cape Heaths were from Messrs. Williams, Cutbush, Glendinning, Green, Taylor, Harlock, Rhodes, and Whitbread. Among the varieties we observed *Florida*, a well-bloomed bushy plant; *Alberti*, orange-buff, waxy tube; *Perspicua nana*, blush-white; *Ventricosa coccinea*, rosy blush, fine; *Vestita rosea*, the whorls of rose-coloured waxy flowers having a very attractive appearance; *Hartnelli virens*, brownish red, with white mouth. *Pelargoniums* were in considerable quantity, and first-rate condition; exhibited by Messrs. Nye, Wiggins, Windsor, Weir, White, and others, among the class of amateurs; and by Messrs. Turner, Dobson, Frazer, and Bragg, amongst nurserymen. The best were *Saracen*, *Wonderful*, *Carlos*, *Majestic*, *Laura*, *Mrs. White*, *Gem of the West*, *Governor-General*, *Fandango*, *Lucy*, *Sanspareil*, and *Viola*, many of them splendid, well-bloomed specimens. Among *Fancy Pelargoniums* we saw collections from Messrs. Turner, Frazer, Bragg, and Cutbush. The best varieties were *Madame Sontag*, *Lady Hume Campbell*, *Cloth of Silver*, *Lady of the Lake*, *Celestial*, *Evening Star*, and *Jenny Lind*. Of seedlings, the finest were, *Adela*, pink, with white eye; *Rose Celestial*, similar, and *Dinah*, very dark upper petals.

In *Variegated Geraniums* we noticed *Hôtel de Cluny*, the foliage small, with a broad rim of white, and deep rosy band, flower intense scarlet; *Peltatum variegatum*, an ivy-leaved sort, with variegated foliage, much curled, the flowers pink; both were from Messrs. E. G. Henderson, of Wellington Road. Of Stove and Greenhouse Plants there were numerous and excellent collections, the chief being from the following growers: Mr. Whitbread, Mr. Green, Mr. Taylor, Mr. Hamp, Mr. Barter, Mr. Dodds, Mr. Carson, and others. Among the specimens we take occasion to record the following as beautiful specimens: *Eriostemon nerifolia*, well bloomed; *Boronia Drummondi*, covered with small rosy pink flowers, and neat foliage; *Ixora coccinea*, *Aphelexis spectabilis grandiflora*, *Franciscea confertifolia*, large purple-blue flowers; *Pimelia spectabilis*, well bloomed; *Tetratheca ericifolia*; *Ixora Javanica*, orange-yellow, finely grown. Choice collections of *Cinerarias* and *Verbenas* were exhibited, a notice of which we must for the present defer.

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A WORD ON VIOLETS.

BY MR. W. GREEN, PLYMPTON.

EVERY garden ought to have a shady place devoted to the several sorts of Violets, which require little or no trouble to grow, are almost unequalled for delicacy of scent, and bear a profusion of pretty blossoms.

The Russian Violet is a charming little flower, frequently coming into bloom at the most uninviting season of the whole year. I have grown it, and several other kinds, as the Double

Purple, Neapolitan, Tree Violet, and some which I do not know by name—the whole of them well worth growing by those who would have a succession and variety. They love shade, but require water and air, and may be forced, without much trouble, in a one-light box frame, in or out of pots, as preferred. I prefer having them in pots or pans for forcing, which admits of a supply adequate to my demand at any time, and as soon as one set have gone out of flower, they are replaced by others. Some may be placed in a slight bottom heat, to bring them forward before others. The Neapolitan Violet is the best for keeping in succession, and is very handsome; its blossoms of delicate pale blue afford a pretty contrast to the white and darker varieties. Few flowers are more manageable than this; for with a little protection a constant succession of flowers may be kept up from November till spring, and out of doors the supply may be kept up till they are eclipsed by other more showy, but not sweeter flowers. A succession of bloom, from one sort or other, may be obtained almost all the year round, if attention be directed to watering and shading.

A DESCRIPTIVE LIST OF STOVE AND GREENHOUSE PLANTS, REMARKABLE FOR THE VARIEGATION OR HANDSOME APPEARANCE OF THEIR FOLIAGE.

BY MR. WM. AITON, SHEFFIELD.

FIRST DIVISION.—STOVE PLANTS.

(*Continued from page* 126.)

MARANTA ALBO LINEATA.—Foliage bright dark green, regularly striped with white, and shaded on the under surface with purple.

M. micans.—A small species, having a light feathery stripe up the centre of its dark green, shining leaves.

M. regalis.—This is a very handsome plant, the ground-colour of its leaves bright green, with lateral stripes of rosy red; the under side purple. The price of this species is at present high, but another,

M. rosea lineata, which in some degree resembles it, may be had at a reasonable rate.

M. sanguinea.—The upper side of the leaves is a bright grass-green, and the under, clear rosy purple; the flowers are also showy, being borne in large spikes, scarlet and white.

M. vittata.—Light green foliage, covered with white stripes.

M. Warscewiczii.—Large, deep green, velvety foliage, with a feathery stripe along the middle of each leaf of a clear, pale green, margined with blotches of a deeper colour; under sides purplish brown.

M. zebrina.—A large-growing species. The ground-colour of the leaves is a dark velvety green, striped and margined with a paler tint.

The *Marantas* are plants of handsome habit, growing freely in any light rich soil, and may be readily increased by dividing the roots.

Niphea argyroneura.—The leaves are deep green, beautifully reticulated with silvery white veins, and pale purple on the under sides. A dwarf-growing plant, bearing numerous pretty white flowers.

Pandanus Javanicus, var. *variegatus.*—Foliage long and leathery, ground-colour bright green, edged and striped with silvery white.

Pavetta Borbonica.—Leaves deep green, prettily spotted with pale green; the midrib salmon-red.

Poinsettia pulcherrima.—This old and well-known plant ranks as one of the handsomest of this class of plants. The floral leaves are a brilliant scarlet, and the rest of the plant grass-green.

P. pulcherrima alba.—Resembles the above except in the floral leaves, which are cream colour.

Sarracenia Drummondii.—The pitcher-like leaves of this curious plant are of a bright yellow-green, beautifully mottled with white, in brownish red network, at their upper extremity. The flowers are large, of a light blood-red colour.

Solanum pseudo-capsicum, var. *variegatum.*—The foliage is green and white; the flowers white, produced in great numbers, and afterwards succeeded by an abundance of coral-red capsules, or berries; all combining to make it a very attractive plant.

Sonerila Margaritacea.—One of the most beautiful of all plants, remarkable for handsome foliage and flowers, which are combined in the present plant. The leaves are of a lively green, regularly spotted in rows with white dots, ribbed, and margined with faint red; the under sides marked with pink veins. The flowers are borne on pink stalks, and are pale carmine, with prominent yellow stamens. It is a profuse bloomer, and of dwarf, compact habit. It requires the temperature of a cool stove, or warm greenhouse, and in this respect comes within reach of the means of most persons.

Tradescantia discolor, var. *foliis variegatis.*—A remarkable species, with splendid variegated foliage, erect and long. The stripes, which are green and yellow, extend down the whole leaf on their inner surface, the outside being of a brilliant purple-crimson. The flowers, in purple bracts, are white, but, from their small size, not very attractive.

Vriesia speciosa.—The leaves bluish green, marked with irregular parallel bands of deep black across their whole length, but somewhat broken into blotches towards the extremity. The flowers are yellow, produced in a spike of brilliant orange-scarlet bracts. In habit, the plant bears a close resemblance to the Pine-apple.

The above concludes the descriptive list of such stove plants as are worthy of culture for the sake of their handsome leaves. In my ext I will draw attention to such as require a lower degree of temperature for their cultivation, embracing greenhouse plants and those which flourish in the open air.

(*To be continued.*)

NOTES ON HARDY EVERGREENS.

BY CLERICUS.

No. I.—The Pinus Tribe.

TO those who have pleasure grounds and shrubberies, it may be an assistance to give a brief descriptive catalogue of evergreen trees and shrubs, arranged according to the various genera, noticing only the most select, not only of species, but of genera, so as to bring the whole within a reasonable compass. In performing this task, it is my intention to give the preference to those things that I know from experience to be most worthy of cultivation, from their habit, foliage, and contrast. The Pinus tribe may be regarded as the royal family of evergreens, and as such I purpose to commence with it. To enumerate many varieties (and of this tribe there are a great number) would be to perplex the reader; I shall confine myself, then, to such as are select, and to be obtained at most nurseries without much difficulty. Many of this interesting tribe are possessed of strong characteristics, contrasting finely, and affording an elegant variety in habit and foliage; some being light and airy, others of closer and more dense habit; some, again, are pendulous, and some upright, but all very attractive trees, the judicious introduction of which contributes much to the appearance of tasteful grounds. In forming arboretums and shrubberies, more effect is produced by exercising a little discretion in the selection of distinct kinds, rather than in planting a great number of species, the difference of which, to the uninformed, is often so inconsiderable as to baffle their attempts at discovering it.

Pinus Douglasi, Douglas's Spruce.—A very beautiful and rapid-growing conical tree, with vivid green foliage. In its native country, North-west America, it attains sometimes near 200 feet in height.

P. amabilis, Lovely Silver Fir.—This is closely allied to the great Californian Silver Fir, but the cones are of a superior size, and the leaves entire, which is not the case in the latter-named species. It is a noble tree, growing to the height of 150 to 200 feet, a native of North America, and perfectly hardy, although at present rare in collections.

P. Canadensis, Hemlock Spruce.—A light, elegant-looking tree, reaching a height of from thirty to fifty feet in the climate of the

British Isles, although in its native localities, from Carolina to Hudson's Bay, it often attains 100 feet. The leaves are flat and solitary, like the Silver Fir, and cones drooping like the Spruce.

P. Cephalonica, Cephalonian Silver Spruce.— Decidedly ornamental, and quite hardy, although an inhabitant of the Greek Islands. Its habit resembles in some degree that of *Araucaria Cunninghami*, the branches long, horizontally spreading, covered with stiff, pointed leaves, disposed in a very irregular manner. A very distinct species, attaining a height of about 50 feet.

P. Frazeri, Frazer's Silver Fir.—From the United States, principally, however, Pennsylvania. It is a dwarf-growing species, not averaging more than about fifteen feet, and in this respect is useful as an ornament in grounds of limited extent, where taller-growing trees would be out of place. It is also perfectly hardy, and of neat appearance. The leaves are very short, of a deep green, arranged in two horizontal rows.

P. nobilis, Noble Silver Fir.—For a large domain, there is scarcely a more magnificent tree than this, attaining, as it does, a great height and affording excellent timber. In beauty, it is a rival to the Araucarias, and in its native district it forms vast and noble forests, from the Columbia to the mountains of California. The unfortunate Douglas was the first to forward cones. It may be had in small specimens, at a reasonable price, and is perfectly hardy.

P. Khutrow, Himalayan Spruce.—Another magnificent species, from the Himalayas, growing at an elevation of from eight to ten thousand feet above the sea-level, and therefore quite hardy with us. It reaches sometimes upwards of a hundred and twenty feet, though its average is stated to be half that height. It is of a drooping character, exceedingly ornamental, and makes a beautiful appearance on a lawn or in the foreground of a shrubbery, the branches being slender and feathery, closely set with leaves from one to two inches in length, of a very distinct green tint. When grown as a single object on a lawn, and not in a crowded situation, its beauties are fully developed, and it is feathered down to the ground, a beautiful pyramid of vegetation.

P. Menziesii, Menzies' Spruce.—The leaves of the present species are of an extremely pretty shining green, with silvery white lines on the under side, making it a very conspicuous object. Its habit is pyramidal and growth luxuriant, soon attaining a considerable height. Boggy soil suits it admirably, and it is reported to furnish timber of valuable qualities.

P. pendula, Weeping American Larch.—An interesting, rather dwarf tree; the branches are long, pendulous, and at rather wide intervals; leaves long, deep green; the bark is smooth and dark coloured. Very suitable for a lawn.

P. Atlantica, Silver Cedar.—A noble tree of beautiful appearance when fully grown, and even in a young state it is remarkable for its attractive conical form. The leaves are glaucous, of a silvery green. It inhabits Mount Atlas, and attains a large size, though of slow growth.

P. Deodara, Indian Cedar.—Without exception, the most ornamental and imposing of all Conifers, growing well in a variety of soils, preferring, however, a somewhat moist situation. Its graceful habit, when young, is well known; in a state of maturity, it reaches one hundred and fifty feet in height, and as much as forty in circumference. The leaves are longer than those of the Cedar of Lebanon, of a glaucous green, and branches pendulous, thickly adorned with large-sized cones. The wood is said to be of great durability, and capable of receiving a high polish, qualities which will doubtless cause it to be extensively planted in this country, especially as it bears our winters perfectly. An avenue of Deodars, like the one in the Kew arboretum, will, in the course of a few years, present a most magnificent spectacle. It is indigenous to the Himalayas, growing at an elevation of from six to twelve thousand feet.

P. Cedrus, Cedar of Lebanon.—A description of this well-known and renowned tree is perhaps unnecessary; and I only need to add that on a lawn it is a beautiful object, and thrives best in a rather sheltered situation.

P. Lambertiana, Lambert's Pine.—The immense height to which this tree attains would tend to exclude it from small grounds, were it not that it is rather a slow grower, reaching, however, more than two hundred feet, when at maturity. The trunk is clean, smooth, and very straight, the branches in whorls, somewhat pendulous, and the leaves about five inches long, of a grass-green colour. The cones are of a size well proportioned to that of the tree, being frequently fifteen inches long and a foot in circumference, tapering and hanging downwards. It is very hardy, and was discovered also by Mr. David Douglas in North-west America.

P. Devoniana, Duke of Devonshire's Pine.—A fine tree, growing about seventy feet high, from Real del Monte, in Mexico. The leaves are a foot long, and cones ten or twelve inches. Perfectly hardy.

P. filifolia, Thread-leaved Pine.—The leaves of this species are longer than those of any other, being commonly fifteen inches, and not unusually some are found a foot and a half in length. The branches are of an enormous size, and noble appearance; the cones average seven inches in length. It was detected by Mr. Hartweg in Guatemala.

P. Gordoniana, Gordon's Pine.—Another remarkable species from Tepic, in Mexico, introduced also by Mr. Hartweg; although not so long as the preceding, the leaves of the present species are from fourteen to sixteen inches long, on branches borne in whorls, of a pale green colour. The cones are rather small, not often exceeding four inches in length. The tree grows about sixty feet high, and is very suitable for planting in groups, which have a singular appearance, from the waving tresses of its long leaves.

P. Coulteri, Coulter's Pine.—A rather scarce species at present, but very desirable, for its beautiful appearance. From California, where Mr. Douglas found it growing with *P. Lambertiana*, and varying from eighty to more than one hundred feet in height. The branches are large and spreading; leaves broad, fifteen inches long, of a glaucous green. The cones are of a magnificent size, twelve inches long by six inches across. It is a very hardy species.

P. insignis, Remarkable Pine.—The chief attraction of this consists in the singular character of its foliage, which covers the branches very thickly, twisting in all directions, of a bright green colour, and four or five inches long. Its cones are small, and the tree a very rapid grower, reaching a moderate height. From California.

P. Sabiniana, Sabine's Pine.—Indigenous to North-west America and New Albion, where it grows upwards of one hundred and twenty feet high, branching down to the ground; its cones are large, covered with prickly scales, and borne in whorls or clusters of from five to nine, often near a foot long, and as much as eighteen inches in circumference; leaves pale green or whitish, about ten inches long. A very hardy, rapid grower.

P. Sinensis, Chinese Pine.—Thickly covered with rich grass-green foliage, five or six inches long, and slender. It reaches a considerable height, and bears a great number of little cones.

P. inops, Jersey Pine.—Height about thirty feet, growing best in a dry soil; its branches are long and pendulous, twisting; leaves dark green, and short. The cones are about two inches long, borne in profusion. The old bark is very rugged, and full of cracks, from which a great quantity of yellow resin exudes. A native of New Jersey and Carolina.

THE MOUTAN PÆONIES.—When Mr. Fortune visited China on the service of the Horticultural Society, the acquisition of new Moutans was one of the first objects to which he attended. In his *Wanderings*, he mentions the beauty of the varieties seen by him at Shanghae; how he heard of yellow, and purple, and blue sorts; and at one time saw lilacs and purples, some nearly black; at another, dark purples, lilacs, and deep red. Afterwards, having discovered that these things came from a place only six or eight miles from Shanghae, Mr. Fortune tells us that he proceeded there daily during the time the different plants were coming into bloom, and secured some most striking and beautiful kinds (now in the garden of the Horticultural Society). The name ***Moutan*** seems to be an alteration of the word ***Botan***, the usual name of these plants in Japan, as we are told by Kæmpfer, who adds that it is also called *Fkamigusa* and *Hatskangusa*. As the Japanese name the common Pæony *Saku jaku* and *Kawa jakusa*, they seem to think the Moutan and Pæony distinct genera, in which I quite agree with them. It is to be suspected, also, that more species than one is comprehended under the common name of Tree Pæony, even although, as is probable, the Poppy Moutan (*P. papaveracea*) should be a mere variety of the common kind; for some of the Japanese kinds are said to form rapidly a woody stem eight or ten feet high—a stature which the common Moutans would only gain after many years in even favourable climates. The Chinese and Japanese are said to reckon their varieties of Moutans by hundreds, as we do our Roses. It is not improbable, now that the single and very slightly double kinds are beginning to establish themselves in Europe, that we too shall have the same dominion over them as over Camellias and Chrysanthemums.—*A. Z.*

FARFUGIUM GRANDE.

(*See Plate.*)

IN our February number (p. 42) we gave a brief notice of this extraordinarily fine plant; we have now the pleasure of giving our subscribers a figure, one-sixth of the natural size, which shows its habit very correctly. Mr. Fortune discovered it growing in the garden of a mandarin, in the north of China. According to Mr. Fortune, the Chinese grow it in pots, for decorating their houses and gardens, where it produces a very fine effect, from the striking beauty of its numerous, large, yellow-spotted leaves. We would recommend our readers to go and see it, at Mr. Glendinning's nursery, Chiswick, who is now receiving orders for it, although, as he informs us, it will not be sent out for some time. In this country it will form quite a new feature for vases and flower-garden decoration.

ON THE TREATMENT OF HOVEA CELSII.

BY A KENTISH GARDENER.

PERCEIVING, in your last number, an inquiry by "A Subscriber" respecting the proper method of managing this plant, I have taken the opportunity to forward a few remarks in reply, should they be deemed worthy of a place in the next number of your valued *Cabinet*. The habit of this Hovea is decidedly bad, and it requires no little skill to overcome its natural tendency to a thin and straggling growth; but no plant so well repays the care required in counteracting it. Its beautiful little blue blossoms, closely enveloping the stem, have always rendered it a favourite with me, notwithstanding its natural bad habit, and the care required in producing a handsome-bloomed specimen. There are a few points that require attention, and which are too frequently overlooked in growing Hoveas; these I shall briefly touch on in detailing my method of treatment. To begin with cuttings: these may be prepared and struck in the same manner as Heaths and other plants of that class; when struck, they may be put into small sixties, or pots about two or three inches across (it is best not to have them too large at first), in a soil made up of peat, one part, and loam from decayed turf, two parts, with a tolerable sprinkling of silver sand; manure of any kind is inadmissible, and, indeed, positively injurious. This compost should be passed through a coarse sieve, and the pots provided with plenty of moss or crocks, to secure liberal drainage. The young plants ought not to be put in deeply, just sufficient to cover the roots being all that is required. When they are established, which will be shown by the fresh green leaves at the crown of the stem, pinch out the top, and set them in the most airy part of the greenhouse, near the glass, but shaded from the heat of the sun, when it comes out strong. Plenty of air is necessary, to prevent their being drawn up, and the object of obtaining a dwarf bushy specimen defeated. They must not be exposed, however, to cold or drying winds, or they will be checked; the soil may be kept just uniformly damp, but never absolutely wet. Here they will soon throw out a number of young laterals, which will speedily attain a length of from two to three inches, when their ends should be pinched in; when any more are produced, it will require judgment to decide which should be permitted to stand, so as to form a handsome but not overcrowded bush.

The young plants had better not be allowed to bloom too early, for if you look to future effect rather than the present, it will be well to pick off the incipient bloom as fast as it shows itself, and keep the branches pinched duly in. Nevertheless, the Hovea is a beautiful object, even if it bloom ever so young; and it may, if desired, be allowed to flower the first time it makes flower-buds. When the blossoms decay, it is well to remove them, rather than to allow the ripening of seed, for that tries a plant more than anything else.

The young plants will require judicious shifting; the time when this ought to be done can only be determined by turning out the balls, and when it is seen that the roots have reached the side, and begun to run round it, change the pot to a size larger, before the fibres begin to mat together. The young wood only bears flowers; this will therefore require attention whenever the plant is trimmed. So long as it has healthy, but not too rich, soil, and is properly stopped back, the Hovea will grow bushy and bloom well.

To form standards (which, however, to my mind, never look so well as dwarf bushes), almost all that is required is to let the plant alone, as they put forth very few laterals naturally, and where they do come out, they should be rubbed off as soon as the buds appear. As the tree grows, the leader may be trained up; and when it has attained the desired height, shorten in the head, leaving only five or six branches, each of which should have five or six buds, and pinch out the leader. It will soon push out others, which will require attention to prevent their making an entangled head, and such as have a tendency to grow erect may be tied down. Allow all to grow so as to make the best effect, stopping such as would crowd the centre of the head. After a time, those which have been tied out will keep the desired position permanently; and by this and such other means as are well known to the gardener, the Hovea may be made a handsome standard. Quick growth must be avoided in forming it either as a bush or standard; therefore I would repeat the caution that anything too stimulating must be withheld, as too rich compost or too close an atmosphere. Water may be supplied rather freely in summer; but in winter only in fine weather, and then in reduced 'antity.

By attention to these simple rules, I am persuaded that your correspondent, "A Subscriber," and others who grow this lovely plant, will experience no difficulty in forming nice specimens, and in blooming them well. I may add that similar treatment suits *Hovea ilicifolia* equally well.

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HISTORICAL REMARKS ON THE TASTE AND STYLE OF ORNAMENTAL GARDENING.

BY HORTULANUS.

THE earliest attempts at ornamental gardening in modern times, of which we have any reliable and particular accounts, were regular enclosures, with everything they contained arranged most symmetrically, with trim clipped edges, and straight walks fenced in with lattice-work. This rectangular, stiff, and formal style continued to prevail from the earliest times till after the commencement of the eighteenth century. Before this, Le Nôtre, a French gardener and architect, was extensively employed in almost every country in Europe; some of his work may yet be seen in France, and many imitations of his style elsewhere. But whilst Le Nôtre and his pupils were driving every trace of nature from garden scenery, painters were contemporaneously engaged in the study of it in its wild aspect, and it is remarkable that in their productions very few trim garden scenes are introduced. It seems as if the idea had not yet been entertained that the principles of ornamental gardening and of landscape painting are the same, for the artists in each profession took exactly contrary courses; the painter studying nature on his canvas, while the gardener busied himself in cutting, tying, and slashing vegetation into the most whimsical and regular figures his ingenuity could devise. Geometry was his text-book, and without it he could not prune or plant a tree, trace a line, or even trim a hedge! Thus were painters and gardeners engaged, each with professedly the same object in view: the one forming imaginary, and the other real scenery; the one enamoured of rusticity, and the other offended if a single leaf projected beyond the limits his unwearied shears had assigned.

After a while the struggle between nature and trim-art was decided in favour of the former, and Kent, a landscape painter by profession, gave it up to undertake the planning and laying out of grounds; although he aimed at too much, by endeavouring to obtain immediate effect, yet his style was an improvement on that of his predecessors. I say he endeavoured to obtain too much, inasmuch as he mainly depended on the introduction of large trees at once removed, and then, to give appearance of age to the scenery (so near is the ridiculous to the sublime), planted dead trees with the living ones! Many country seats of the nobility of the time were capable of great improvement, by merely doing away with their burdensome formality; a reformation took place, and every connoisseur wondered how the contracted ideas of a gardener could have been so long tolerated. In course of time Dutch and Italian designs disappeared altogether. Thus the regularity of the old style was excluded, to admit the irregularity of the new. The new style received the title of "English," and some very perfect things of the kind were executed in various parts of the country; not, however, by clearing away all the old style, but by a judicious rejection of many of the more objectionable features, and a tasteful reservation of a part of them. In the execution of all this, the most refined taste, united with a competent share of arboricultural knowledge, is of the first necessity, and this, it is said, is much assisted if the talents of the landscape painter be combined.

(*To be continued.*)

THE FRESH-WATER AQUARIUM.

BY MR. SHEPPARD, BURY.

(*Continued from p.* 103.)

JUNE is an excellent time for collecting specimens for stocking the fresh-water aquarium, I would therefore advise the beginner to lose no time in making a commencement. The handsomest of all plants for the purpose are the Ferns, such of them as are fond of moisture at least, and these may be found in boggy places, under the drip of rocks, and on the banks of rivulets; here the collector may obtain choice specimens for planting on his projecting miniature rocks and ledges, although it will save time and trouble, if these particulars be regarded, to purchase them of the nurserymen, or such of the seedsmen as supply plants for aquaria (and their number rapidly increases). When they are planted, the old fronds had better be taken off with a sharp knife, and the plants put in so that the rhizomes are just clear of the water, for they will not grow where the compost is sodden with moisture. A portion of coarse sand, small broken chips of limestone, and fresh mould may be laid in the crevices to receive them, and when planted, small patches of fresh green moss may be laid over, through which the young fronds will quickly penetrate; moss serves as a protection from any undue exhaustion, should the sun happen to shine too powerfully on the glass. It is well to avoid crowding the case; therefore, for one of oderate dimensions, two or three sorts should suffice. When the iage decays, cut it off with a pair of scissors, and let the roots ve entire repose.

The following is a selection of a few Ferns most successfully grown by me in these aquaria, any of which the reader may procure with facility, although there are many more equally well adapted for the purpose:—

Polypodium dryopteris, one foot and a half high.
Cistopteris fragilis, one foot high.
Cistopteris alpina, half a foot high.
Scolopendrium vulgare, one foot and a half high.
Adiantum capillus Veneris, one foot high.
Trichomanes Tunbridgense, four inches high.
Ophioglossum vulgatum, four inches high.

Of other plants which may be appropriately introduced, are a few aquatics. Such as float on the surface of the water are the following:—*Potomogeton fluitans*, the floating Pondweed, a little patch of this will suffice, as also of the common Duckweed, *Lemna minor* and *L. gibba*, which should not be allowed to spread very far, or the beauty of the scene will be much impaired. They may be obtained from almost any pond or dyke, and are very interesting little plants, illustrating the fact of aquatics absorbing by their under surfaces, and giving out by their upper pores. This genus gives off oxygen more rapidly than any any other plant, as may be proved by immersing a few specimens in a jar of water, inverting it, and placing it in the sun; the water is displaced and a volume of pure oxygen soon obtained that will kindle a spark on charcoal, which burns with great brilliancy in such an atmosphere. *Ranunculus aquatilis* is another capital plant for the aquarium, if regularly thinned, as it is apt to grow rather luxuriantly. It is a most elegant plant for the water, its finely cut leaves floating gracefully therein, and its pretty blossoms of pure white are surpassed by few aquatics. The plant sends down numerous fibres to the bottom of the mud, and many creatures sport among its tufts. When the flowers decay it is best to cut them off, as well as the foliage. The Frogsbit, *Hydrocharis morsus ranæ*, is a handsome little Water-lily-like plant, bearing white flowers of three petals, which ought to be in every domestic aquarium; also *Hottonia palustris*, the Water Violet, which bears a corymb of delicate pink flowers, almost resembling a Phlŏx. It grows almost too high, however; nevertheless, where circumstances permit, it should by all means be grown, and although I have never met with it wild in the neighbourhood of London, it may be had by order of some of the nurserymen.

In my aquaria I have grown and would recommend to others the annexed list of water-plants, from which selections may be made, besides the few plants named above, which are the most attractive.

Nasturtium officinalis, the Water Cress, white.
Nuphar lutea, the Yellow Water Lily.
Aponogeton dischatyon, Cape Pondweed, white.
Veronica becabunga, Brooklime, blue.
Lobelia Dortmannia, blue.
Dasmosonium Indicum, white.

Besides these, there are a few fresh-water Algæ, of which I do not know the names, and several species of Confervæ, with a few Rushes. The Yellow Water Lily requires a large aquarium to show off its beauties. Many persons will be guided by their locality in the selection of plants, but a few visits to the water, whether of ponds or rivers, will enable them to select plants suitable for their purpose; and here I would strongly offer my protest against overstocking an aquarium. When overcrowded the plants neither flourish so well, nor look so healthful as when they have freer scope to develope themselves, and those who are fond of variety can obtain it each successive year, by the rejection of old and the introduction of fresh species.

As to live stock, a few small fishes, water-beetles, and some of the prettily spotted and variegated harmless water-newts are all that is necessary. Gold-fish are perhaps the best of all for the purpose, but little sticklebacks, minnows, gudgeons, and Prussian carp are very elegant creatures. To obtain these I apply to any of the dealers in fishing-tackle, who will undertake to supply them at a few days' notice. Several species of water-beetles, as the great black *Hydrous piceus*, the pretty, active little *Gyrinus natator*, and many others, may be got by the use of a small hand-net in any large pond, especially in the south of England for the first named. Those who live near London may save time, however, by paying a visit to Mr. Brigden, of the Arcade, London Bridge, who supplies these and many other interesting inhabitants of the water for a trifle. A few fresh-water snails are highly useful in every aquarium; they have been called the scavengers of nature, and will be found to keep the water as well as glass clear of all scum and green slime. Under my own management the cases and fluid look as clear as crystal, and yet I devote very little attention to them personally.

In conclusion, Mr. Editor, and gentle reader, few articles look so pretty and are half as interesting as the fresh-water aquarium when neatly made, properly supplied, and judiciously superintended. We see so much beauty, so much of wisdom in the working of such an object, as cannot fail to call forth our admiration of the wonderful adaptation of parts and uses of creatures, apparently insignificant, in the lower orders of creation. Stay-at-home travellers, as well as those who "go down to the sea in ships," may here have "something to please and something to instruct," from one end of the year to the other.

I forgot in the proper place, and take occasion to mention it here, that a few lumps of clear, bright green glass make a pretty appearance introduced among the pebbles and stones at the bottom of the aquarium. Those who desire a cheap aquarium for the purpose of study may use a common large propagating glass, inverted on a stand f wood; and although their form, cylindrical, is not the best adapted r viewing the contents, they answer very well; and a large-sized e, sixteen inches across, may be had for about 3*s*. 6*d*.

BOTANY OF THE MONTH.

BY MR. SHEPPARD, BURY.

INNUMERABLE herbs and flowers deck our fields, woods, and hedgerows in the "leafy month of June," which is, indeed, the month when fair Flora reigns supreme in field and garden. At this season the great majority of British flowering plants are in blossom.

> "The *plant*, upspringing from the *seed*,
> Expands into a perfect flower;
> The virgin daughters of the mead,
> Wooed by the sun, the wind, and shower.
> In loveliness beyond compare,
> They toil not, spin not, know no care."

Those who are fond of the beauties of nature, and the collector who wends his solitary way, removed from the turmoil of smoky cities, searching for plants to fill the pages of his herbarium, which he culls now in the green pasture, and anon from the moss-clad rock, or, may be, steep hill-side, armed with his knife, trowel, and tin box, may now meet with an abundant harvest to repay their toil and happy labour.

About the beginning of the month we find the Wild Thyme, *Thymus serpyllum*, in blossom. Of this plant there are several varieties, all great favourites with the bee; so fond are these insects of Thyme and other aromatic plants, that it is worth while for the bee-keeper to grow them near the hives. Virgil praises this sweet herb in his Bucolics—

> "Allia, Serpyllumque herbas contundit olentes."

The Wild Dog-rose, *Rosa canina*, is common in hedges; true type of love and beauty, and a fit successor to the fragrant Hawthorn, whose berries are accompanied in winter by the bright scarlet fruit of the Wild Rose, known as *hips*. This variety is distinguished from the other English Roses by its spines or prickles, which are hooked at the end, and by its leaves being destitute of hairs. I cannot refrain from quoting the following poetic allusion to this flower, climbing o'er our hedgerows in the beauty of its June floration:—

> "Here the Wild Rose's arching spray
> Flaunts to the breeze, above the shady way.
> What palace proud, what city hall,
> Can match these verdant boughs, that fall
> Vaulting o'er banks of flowers, that glow
> In hues of crimson, gold, and snow?"

Another favourite is the Honeysuckle, *Lonicera pereclymenum*, often to be seen accompanying the Wild Rose; so well known a plant likewise needs no description. It is the poor man's shrub, and often decorates the rustic porch, or climbs the trellis of the humble cottage, where it diffuses a scent scarcely to be approached by that of any other flower. It is often associated with Ivy, the latter an emblem of age and the past, whereas the Honeysuckle serves to remind us of youth and the living present, whilst its fragrance and beauty appear most appropriate to the happy home it adorns.

> "Then tell me not of austral flowers,
> Or purple bells from Persian bowers,
> The Woodbine of this land of ours
> Is dearer far to me.
> This flower in other years I knew;
> I know the spot wherein it grew,
> With Violets white and Violets blue,
> Around the garden tree."

In shady woods, we may discover the elegant little Wild Strawberry, *Fragaria vesca,* with its little flowers, so white and so delicate, and its pleasant fruit. It was called *Fragaria* by the Romans, from the fragrance of its fruit, though there is some doubt as to the origin of its English name "Strawberry." The late Sir Joseph Banks attributed the name to the practice of placing straw under the fruit as soon as it began to swell, but we must bear in mind the name was given to the plant at a time when it grew wild in our woods only, and had not even been introduced to the garden of the abbey or monastery. To me it appears more probable that the name has been given in allusion to the fact that the fruit was in former times sold threaded on straws, and so many straws for a penny. Our native Strawberries have long been cultivated, and since much improved. We find Old Tusser, who lived in the reigns of Henry the Eighth and Elizabeth, gives the following quaint instructions for planting Strawberries, in his "Five Hundreth Pointes of Good Husbandrie:"—

> "Wife, into the garden, and set me a plot
> With Strawberry roots, of the best to be got:
> Such growing abroad, among thorns in the wood,
> Well chosen, pricked out, prove excellent good."

Convallaria majalis, the Lily of the Valley, well known for its drooping stalks of pure white, bell-shaped flowers, blossoms this month. It is a British plant, though not now found so abundantly as in former times. Another plant of somewhat similar appearance is the Solomon's Seal, which, however, grows much higher, often reaching from two to two and a half feet in height; it is found in shady woods in many parts of the kingdom. The poets have called both plants emblems of purity and humble innocence. The Clustered Bell-flower, *Campanula glomerata,* may now be met with in corn-fields, though we may not call it a common plant; several other species are also in bloom, all remarkable for the delicate blue colour of their pretty bell-shaped flowers. Veronicas and Salvias abound; many species of both genera being pretty, and well worthy our notice. The fields of Clover, *Trifolium pratense,* now in flower, produce a delightful fragrance, as well as the Sweet-scented Vernal Grass, *Anthoxanthum odoratum*, which latter plant is the cause of the very delightful scent of hay. Oft, in the fenny districts, we meet with the Yellow Flag in bloom, *Iris pseudacorus*. It grows in ditches and on river banks, the beauty of which situations is much enhanced, the present and following months, by its large, golden-looking flowers and sword-shaped leaves. Of trees and shrubs in bloom, we may notice the Ash, *Fraxinus excelsior*, and the Privet, *Ligustrum vulgare*, both belonging to the same natural order, namely, that of the Olive, *Oleaceæ*. The Ash is valued for the beauty of its foliage, as well as for its serviceable wood; by some it is considered a rival to the Oak, and the poet says—

> "Aloft the Ash and warrior Oak
> Cast anchor in the rifted rock."

Our coasts furnish many plants in flower, but of which I can only here mention the names. There is the Sea Barley, *Hordeum maritimum*; the Loose Sedge, *Carex distans*, which grows in salt marshes; the common Alkanet, *Anchusa tinctoria*; the Roman Nettle, *Urtica pilolifera*, in sea wastes; the Sea Rocket, *Bunias cakile*, on sandy shores; and the Sea Chickweed, *Arenaria peploides*, all very interesting plants, though possessing no great beauty of flower. I am aware that in the foregoing brief list I have omitted any mention of a great number of the delightful flowers of our native isle; I must, however, for the present, content myself, and refrain from drawing too largely on your valuable space, or the patience of your readers, yet allow me to add, in conclusion—

> "Not all-forgotten be those humbler flowers
> Daisies and Buttercups—the child's first love;
> Which lent their magic to our guileless hours,
> Ere cares were known;
> Ah, joyous time! through verdant meads to roam,
> With wild flowers strewn."

ON THE SOIL MOST SUITABLE FOR GROWING THE RHODODENDRON.

BY J. W.

ALTHOUGH many persons who have written on the cultivation of this truly noble shrub, and other so-called American plants, have recommended first one and then another preparation as a compost, and each urging his own as the best, it has been found that nothing suits the Rhododendron so well as good fibrous peat from an old common. The best specimens, such as those grown by Messrs. Waterer, and others who are famous for them, are planted in nothing else. It is necessary to remark that the peat, in order to suit the Rhododendron, should have plenty of fibre in it, so that it may be taken up in large turves without falling to pieces; in this they will be found to flourish amazingly. The beds may be five feet wide, and should have the soil thrown out about eighteen inches in depth, and the space filled up, and a few inches more added at top, with such fibrous peat chopped up small. If the soil where the beds are formed be stiff or clayey, drainage had better be provided for, as stagnant water is the greatest injury to this shrub than can exist. That they grow sometimes in boggy places in their native climate I am aware, but there are many circumstances under which they grow that we do not supply here, and even the American swamps are dry for some distance from the surface in hot weather. In our climate the Rhododendron requires a liberal supply of water when the sun has much power, as few shrubs suffer so much from drought; if we have the means of flooding the beds at such times, nothing can be better.

For pot culture a little difference may be made in the soil, by the addition of one-third loam from a rich pasture, with the peat; this, well amalgamated together and rubbed through a coarse sieve, answers well, although a little cow-dung thoroughly decomposed is strongly recommended by a friend who has grown this shrub in pots with decided success. With such soil, for plants either in beds or pots, there is no difficulty in growing or flowering Rhododendrons in the greatest perfection.

REMARKS ON THE CULTURE OF THE IXIA.

BY MR. JAMES STEWART, GARDENER, WITCHINGHAM HALL, NORFOLK.

HAVING observed that some of your correspondents request a few hints from successful cultivators of the Ixia, on its management, and having had considerable experience as well as devoted much attention to the growth of this pretty little bulb, I send a few remarks, which, if thought worthy of a place in your valuable publication, are at your service.

I have chosen the present time for my communication as the most opportune, as I have invariably noticed that the management the bulbs receive after they have done flowering determines the state of the following year's display, and if not properly treated at such time a failure will certainly ensue. My plan, when the plants are going out of flower, consists in giving them occasionally a little rather strong manure-water, until the foliage begins to turn yellow, after that I withhold water almost altogether, and in three weeks or thereabouts I dry them off, turn the bulbs out of pot, and place them in a box which is made to hold them in compartments, so that each variety is kept separate; here they remain until the time for planting out, about the end of September. When the time arrives I proceed to select out the strongest bulbs, and pot them in six-inch pots, naming them, and adding the letter F, to denote that those are the flowering bulbs; the small ones I divide into three classes, the best of which I label "store," the second size "No. 2," and the smallest "No. 1." When all are potted off I place them in a cold frame, where they remain during the winter, and till the end of March, not giving them any water during the whole of that period, while they remain in the frame; they need but little covering in this state. Care must be taken that they do not "damp off" during winter, which may easily be prevented by giving air when the weather allows. By the end of March they are taken out of the frame and placed in a vinery at the back, where the temperature is maintained at about 55°; at this time I commence giving them a little water, increasing the supply in due proportion to their growth, and every two or three days some good manure-water, which suits them well. This treatment they continue to receive until they have gone out of bloom, and the foliage shows signs of decay. The compost I use is composed of three parts sandy loam, two parts well-decomposed manure from an old hotbed, with the addition of a little sharp sand. Plenty of drainage is necessary, which in a great degree contributes to prevent their damping off in the dull months of winter, and the soil is not rendered sour by stagnant water.

At the present time I have from ten to fifteen spikes of bloom in the six-inch pots, with eight or nine flowers on each spike.

[We regret our correspondent's communication arrived too late for insertion in our last.—Ed.]

* * *

HINTS ON THE CHINA ROSE.

BY MR. PETER MACKENZIE, WEST PLEAN.

CULTIVATORS of China Roses are not altogether agreed respecting the proper season of the year when such Roses should be propagated from cuttings. Some, taking time by the forelock, commence in January and February, putting some pots of plants into a stove which is heated to sixty or seventy degrees of heat. In the course of a short time there are some young shoots ready, from which cuttings are prepared; these are put into pots, and the soil used may be a compound of fine sand, sandy peat, and leaf-mould. After inserting several cuttings into each pot, and the earth settled with water from a fine-rosed watering-pot, they are plunged in a hotbed frame, or left in the stove, covered with bell-glasses. When they are struck and potted into small pots, they will be ready in May to turn out into beds and borders, adorning the garden with their beauty, and filling the air with their fragrance during the summer months. But every lover of Roses has not stoves and hotbed frames to increase their favourite flowers, and many of them have to sing the song of

THE BLIGHTED ROSE.

A Rose in yonder garden grew,
  In summer beauty bright,
It fed upon the fragrant dew,
  It bathed in beams of light;
The gentlest zephyr still would creep
  Warm o'er it from the west,
And the night spirit loved to weep
  Upon its beauteous breast;
While all the haste of insect beaux
Would pause to trifle with the Rose.

Other cultivators of the China Rose recommend April as a good time to place their plants in heat in order to obtain cuttings, and when the young shoots are two or three inches long, they are cut off close to where they last pushed from, inserted in sandy loam, and placed in moist heat, where they soon strike root, and will make fine blooming plants for the summer and autumn. But the "queen of flowers" has many enemies to contend with.

Alas! the flower, one fatal night
  The mildew rode the gale,
And from his pinions scattered blight
  O'er garden, bower, and vale.
I saw it in the sunny morn,
  'Twas dying on its stem,
Yet wore, though drooping and forlorn,
  Its dewy diadem.
But every roaming butterfly
Looked on the Rose and wandered by.

Winter, with its cold and sharp knife, often tries to make cuttings of our China Roses, but such cuttings are more fit for firewood. A stock of young Rose plants may be obtained in a very simple way by those who have not every convenience for propagating them when wanted. At the close of the season, when old plants are cut in, instead of taking the prunings to the rubbish-heap, make cuttings of them, and put them by fifties or hundreds in pots well drained and filled with sand: keep them rather moist, and place the pots in the warmest part of the greenhouse; many will be surprised at the number of young plants they will have in spring, with little or no trouble, and although misfortune may befall some of our out-of-door favourites, and

"The breath of morning had no power upon its faded cheek;
The breezes came, and found the flower they once had loved, a wreck;
They were old friends, and when they fled—who used to linger here—
The Rose would bow its gentle head, and shake away a tear,
But never raised its humid eye to gaze again upon the sky."

It is some comfort, after a winter's battle, where generals of renown have fallen, and hosts of nobility perished, and noble names almost extinguished from the flower garden, to have an army of reserve to fill the places of the slain, at small cost and little trouble, for those who wish to adorn their flower gardens with China Roses.

NOTES ON NEW AND SELECT PLANTS.

BIGNONIA ROLLISSONII. Nat. Ord. *Bignoniaceæ.* This is a stove climber, of first-rate merit, from Brazil, of good habit, and very free flowering. The blossoms are of a bright golden yellow tipped with white, which make a very pleasing contrast. They are produced in large bunches.

71. Passiflora vitifolia. Nat. Ord. *Passifloreæ.*—A handsome addition to this beautiful class of plants. For it we are indebted to M. Triana, who found it in a few localities in the Cordilleras of New Granada. It resembles in some degree *P. sanguinea,* bearing very large, brilliant flowers and fine foliage, somewhat like the vine. It requires the temperature of a warm house, to which it is a great acquisition.

72. Putzeysia rosea. Nat. Ord. *Hippocastaneæ.*—An ornamental stove plant, of the first order. The flowers resemble those of the horse-chestnut, borne in terminal panicles, of a beautiful rose colour. The foliage is large and fine, and in its early stages of a reddish purple. It has been named in honour of M. Putzeys, the learned President of the Royal Floral Society of Brussels.

73. Xanthosoma pilosum. Nat. Ord. *Aroideæ.*—A curious plant, belonging to the Arums, with large heart-shaped downy leaves. The flowers are whitish, with purple markings on the inferior side. A native of New Granada, whence plants have been received by M. J. Linden. It requires stove culture.

74. Eurybia Gunniana, *var.* salicifolia. Nat. Ord. *Compositæ.*—The only known specimen of this plant has just bloomed, for the first time, in the conservatory of the Horticultural Society. It is a shrub of rather graceful habit, attaining a height of five or six feet. Its stems are mealy, purplish, and somewhat angular; the leaves narrow, lanceolate, recurved, and mealy on their under sides; flowers in short, axillary, corymbose racemes, with about a dozen white rays surrounding a yellow disc. It is regarded by Dr. Hooker as a mere variety of *E. Gunniana,* from which it differs, however, in its leaves. A native of the south of Australia and Van Diemen's Land, where it grows rather plentifully. (*Gard. Chron.,* 198.)

75. Comparettia falcata. Nat. Ord. *Orchideæ.*—This plant

was collected by Mr. Linden, in the neighbourhood of Merida, Columbia, who forwarded a plant to the Royal Gardens of Kew, where it bloomed in the stove, in December, 1856. It is a small-growing species, bearing a raceme of from four to six remote flowers, of a crimson-red colour. The lip is large and conspicuous, each bloom about an inch across. (*Bot. Mag.*, 4980.)

76. BEFARIA MATHEWSII. Nat. Ord. *Ericaceæ.*—It bloomed in the greenhouse at Messrs. Veitch's nursery, in the King's Road, Chelsea, in March of the present year. Its flowers are pale sulphur-white, on terminal, scaly peduncles, ten or twelve in each; in form they somewhat resemble a Rhododendron. Its leaves are oblong-elliptical, acute, glabrous, and dark green. In its native region it forms a large shrub, or small tree. Mr. William Lobb sent seeds, which he collected on the mountains of Peru. (*Bot. Mag.*, 4981.)

77. CALCEOLARIA HYSSOPIFOLIA. Nat. Ord. *Scrophularineæ.*—A decided acquisition, described by Dr. Jamieson as one of the handsomest of the genus. He says, "It grows on the pastures above the level of Quito, at about an elevation of 10,000 feet. It is a truly elegant shrub, two feet high, and throws its panicles of bloom all over and around the plant, so that it looks as if adorned with a canopy of white and golden balls. The blooms partake of both colours, which greatly heightens the effect." It is of an erect, stiff growth; the stems dark purple; leaves linear-lanceolate, opposite, and drooping, Flowers produced in terminal clusters, individually about half an inch in diameter. It succeeds well in the open border during summer. (*Hort. Soc. Journ.*)

78. AERIDES CYLINDRICUM. Nat. Ord. *Orchideæ.*—A curious Orchid, stated to be a native of the Jyamally Hills, Coimbatore, in the East Indies. Its foliage, as the name indicates, is cylindrical; the flowers are rather large, lateral, solitary, of a pure white, tinged with greenish yellow on the spur; they measure about two inches across. A not very showy species. (*Bot. Mag.*, 4982.)

79. BEGONIA HERACLEIFOLIA, *var.* NIGRICANS. Nat. Ord. *Begoniaceæ.* Syn. *B. punctata.*—A handsome winter-flowering variety, the foliage of which is also strikingly pretty. The flowers are borne in a large panicle, the petals are nearly white, and the broad wing of the seed-pod, rose coloured; the seed-pods are light green, forming a delicate contrast. The foliage is deeply palmate, the ground-colour a deep, clear green, blotched with black on the margins of the lobes, which are usually seven in number. (*Bot. Mag.*, 4983.)

80. B. GRIFFITHII. Nat. Ord. *Begoniaceæ.* A decidedly beautiful species, with rich, handsome foliage, probably a native of Bhotan, and named after the late Mr. Griffith. The leaves are obliquely cor-ate, and large in proportion to the size of the plant, measuring near x inches long and four in breadth. Their ground-colour is a deep, ch green, beautifully variegated; the centre and margins blood lour, having a broad, pale green, almost circular band between em. The thick scape rises from the rhizome, bearing large flowers,

internally white, tinged with blush on the outside, but few in number. It blossoms in the stove in the winter and spring months, and is a decided acquisition to this popular tribe. (*Bot. Mag.*, 4984.)

81. Thunbergia laurifolia. Nat. Ord. *Acanthaceæ.*—This fine plant has been introduced to our notice from seeds which were raised by Mr. Ingram, of the Frogmore Gardens; also from others which were received from Dr. Thompson, that were collected in the Malayan peninsula, and since bloomed at Kew. It flourishes well in the stove, being a climber of rapid growth; and flowers at various seasons of the year, and not unfrequently in early spring, forming a handsome object. The flowers are borne in terminal, axillary racemes, each measuring three inches in diameter, a clear porcelain-blue colour, with large sulphur-white throat, around which the blue is a shade deeper. It is a much-branched, climbing shrub, with glabrous foliage, about six inches long, oblong-lanceolate, and acuminate. A splendid species, deserving a place in every collection. (*Bot. Mag.*, 4985.)

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NEW AND SELECT GARDEN HYBRIDS.

RHODODENRON CLOWESIANUM (Rollisson).—A hardy variety, of very free-flowering habit. The blossoms are of excellent shape, pure white, the upper petals strikingly marked with dark spots.

44. Rhododendron magnifloðrum (Rollisson).—The blossoms of this handsome plant are of immense size, their colour lilac-purple, tinged with red; the upper petals are beautifully spotted with greenish brown; the trusses of bloom of a magnificent size, and foliage large, as well as handsome. It is valuable not only from its blossoms being so large and showy, but also on account of its being a very hardy, late-blooming variety.

45. Gesneria Miellezii.—Some idea may be formed of this pretty hybrid when we say it is more handsome than *G. Donckelaerii*, figured in the *Cabinet*, for March, 1855. The flowers resemble in shape those of *Gloxinia erecta*, of a lilac-purple colour, with a white throat.

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REVIEWS.

An Analysis of the British Ferns and their Allies. By G. W. Francis, F.L.S., etc. Revised and enlarged by Arthur Henfrey, F.R.S., Professor of Botany, King's College. London: Simpkin and Co, New Edition, 8vo. cloth, *5s.*

We are glad to see an improved edition of this excellent little work, under the able superintendence of Professor Henfrey. The additional illustrations render it more complete and acceptable to the student. It contains a great variety of information concerning the most attractive department of cryptogamic botany, and we therefore would recommend this work to those who are in want of a good book on British Ferns, Club Mosses, etc. It is published in a cheap form, and yet contains excellent delineations of nearly sixty species.

A Natural History of British Grasses. By E. J. LOWE, ESQ., F.R.A.S., etc. 8vo. Monthly parts, 1*s*. London: Groombridge and Sons.

A work of this nature, at a price which would place it within reach of every one, has been for a long time required, and we are glad to see Mr. Lowe has taken up the subject. The first two numbers of the work are before us, and we can justly assert that the plates are very faithfully as well as excellently executed.

No. I. contains coloured figures of *Anthoxanthum odoratum*, *Nardus stricta*, *Alopecurus pratensis*, *A. ovatus*, and *A. agrestis*. No. II. is embellished with plates containing *Alopecurus bulbosus*, *A. fulvus*, *A. geniculatus*, *Phalaris canariensis*, *P. arundinacea*, *Ammophila arundinacea*, and *Phleum pratense*..

The work is dedicated by permission to Dr. Hooker, and altogether is got up in a very neat style; we wish it every success.

FLORICULTURAL OPERATIONS FOR JUNE.

IN THE FLOWER GARDEN.

GENERAL OPERATIONS.—*Baskets, vases, aud clumps* may be filled with Geraniums, Fuchsias, and greenhouse plants. *Bedding plants*, those that require it, may now be pegged down to cover the beds and make dwarf plants, as *Verbenas*, *Petunias*, *Heliotropes*, etc. Water fresh-planted beds, a good start being very advantageous. *Beds and borders*, trim and dress; attend to recently planted. Water and stir the soil in dry weather. *Edgings*, clip *Box*, and repair vacant places. *Fibrous-rooted hardy herbaceous plants* may be propagated by cuttings; shade, and attend to watering. *Grass, lawns*, etc., mow, roll, and trim the edges. *Gravel*, roll, sweep, and weed frequently. *Greenhouse plants out of flower*, set in a shady place out of doors. *Herbaceous plants*, see that they are properly named, and have sticks to each requiring it. *Hybriizding*, let attention be given to obtaining new and improved varieties. *Insects and grubs*, keep down and destroy all that are injurious. *Leaves and stems*, dead or decaying, remove. *Liquid manure* may be given to most choice things out of doors; pits and lights, paint and glaze. *Seeds*, gather as soon as ripe, in dry weather. *Sweeping*, attend to. *Top-dress* plants coming into bloom. *Water* may be given early and late, especially to newly removed plants, and in dry weather.

CULTURAL DEPARTMENT.—*Alpines and rock plants*, similar treatment to that advised last month may still be pursued. *Anemones*, save seed, selected from the finest semi-double varieties; take up as the leaves wither. *Annuals*, sow for autumn bloom. *Auriculas*, place in the shade under a north wall on ashes; keep regularly supplied with water. Prick *seedlings* in shallow pans or boxes. *Biennials and perennials*, prick out seedlings. *Bulbs* require their offsets removed; dry and place in store.

Autumnal Crocuses, Colchicums, etc., may be taken up or planted. *Carnations and Picotees*, stage them, and attend to as directed last month; bandage flowers so that the buds do not split open; make layers, and prick out seedlings. *Chrysanthemums*, re-shift into forty-eight pots, using a compost of good fibrous loam, cow-dung, and a little sand. After potting, plunge nearly to the rim in ashes, or in the border in an open situation, or they will be drawn up weakly; attend to them with soft water, giving liquid manure twice a week; if permitted to become dry, the leaves are apt to fall off, and produce naked plants. The leading stem of any plant desired to be bushy, and not stopped last month, must be done now, in order to furnish side shoots properly, to supply their blossoms in due course. *Cyclamens*, transplant. *Dahlias*, the plants being so well prepared before planting out, will soon be established, and such as are about eighteen inches high must have the top of the main stem stopped, in order to induce the production of side shoots and that the plants may be bushy and robust, they will bear finer flowers in proportion; add larger stakes as they increase, and secure the side branches. Loosen the surface-soil around the plants, or mulch it with manure, and sprinkle over-head, as well as water abundantly in the evening. *Fuchsias in beds*, should the weather be very dry, water well with liquid manure; the roots should never be allowed to become dry. *Guernsey Lily*, transplant and remove as soon as the leaves are decayed; they do better, however, if removed not oftener than once in three years. When this is done, the offsets should be parted, and may be immediately replanted, or kept until July or August. *Hollyhocks*, attend to watering, place stakes as required, and prick out seedling plants. *Hyacinths*, take up and store away when done blooming. *Mignonette for winter*, take up as many plants from the garden as you require, let them be short and stocky, not more than two inches long. Pot singly into four-inch pots, and place them out of doors in the shade; they will only require occasional watering and stopping-in till August. The soil most suitable is loam, peat, and a little dung from an old hotbed, not sifted, and should have plenty of drainage. *Tree Mignonette;* when the plants have made considerable growth, repot into 48-sized pots, in the compost as above. *Pansies*, thin out side shoots to induce fine blooms, apply liquid manure occasionally, and shade; put in cuttings, sow seed, and transplant seedlings. *Pinks*, shade blooms in hot weather; put in pipings when the plants are in bloom; if later, the shoots will be too long for successfully striking root. Select a shady situation, and having dug over the soil, make it soft with water. Take off the pipings, strip off the two lower leaves, and put them in, three inches apart; cover with a hand-glass, which may remain on about three weeks, after which gradually expose them to the air. *Pæonies, Chinese*, will require a copious supply of liquid manure to encourage a fine bloom. *Polyanthes tuberosa*, as soon as flowers appear remove to open air (or drawing-room window). *Pomegranate*, at the end of the month look over the trees, and cut out such shoots as are running to wood; care must be taken to leave all blossom-shoots and spurs; repeat this operation about three times during the summer, and fine flowers will be the result; never use the knife during winter, except to remove dead branches. *Polyanthuses*, turn out of pots when the bloom is over, and place them in a bed on the north side of a low wall or evergreen hedge, planting them one inch deeper than they were in the pots; they will require shade and water, also tie up the leaves for a fortnight, when the plants will have made roots, from every eye under ground. In this situation they may remain till required for potting towards the end of August. *Ranunculuses*, copious waterings will be necessary, shade the beds from strong sun. *Roses*, keep down green fly, and look after grubs in the buds and remove at once; apply a top-dressing of well-rotted manure, also a liberal supply of water. Those in pots place out, and top-dress for autumn blooming. *Rose stocks*, should be staked, and attention paid to disbudding and regulating young shoots; water them freely, which will give strength, and cause the bark to rise well. *Salvia patens*, to prolong bloom and make bushy pinch down some of the shoots before flowering, which will produce laterals, to succeed the first crop of bloom. *Stocks, Queen*, when those sown last month are about three inches high thin out to about six inches apart, and afterwards to a foot, by taking up every other one, and plant in a similar border to that in which sown. *Tulips*, take up as soon as ready, and expose to the sun to dry them thoroughly. *Verbenas*, peg down so as to cover the beds. *Wallflowers, Sweet-williams, etc.*, put in slips to increase stock, under a hand-glass or under a north wall.

IN THE GREENHOUSE.

General Operations.—*Air*, admit freely to all parts of the house; the cooler the plants are kept, the longer they remain in flower; they are also not so liable to be attacked by insects. *Climbers* will require attention, to prevent their getting unsightly. *Cuttings* of nearly all kinds of greenhouse plants may be put off; May and June are the best months for this purpose. Many of the earliest struck will make plants for autumn and winter. *Decayed leaves and branches* should be removed; let neatness prevail everywhere. *Grafting* may yet be performed with such things as *Oranges, Myrtles, Daphnes, Camellias*, etc., although it is getting rather late; the scions should be taken from such plants as are retarded, where this is possible. *Plants*, many of the hardier plants may be set out of doors, in order to make room for fresh importations from the pits. *Seedlings* as directed last month. *Shading and stopping plants*, the same as before also. *Water*, give often and liberally; many plants may have dilute liquid manure where quick growth is desired.

Cultural Department in the Greenhouse.—*Achimenes*, those in flower will require plenty of water. *Azaleas*, when done blooming will require a moist atmosphere and rather a high temperature, to make their wood; the same of *Camellias*. *Cinerarias*, gather seed as it is matured, reduce the quantity of water as they go out of flower. *Oranges, Citrons, and Lemons*, thin out bloom, and impregnate where fruit is desired. *Pelargoniums* require plenty of air night and day; attend to watering and shade. See also last month's remarks. *Primroses, Chinese*, keep in a shady situation. *Roses in pots*, cut away the stalks as they go out of bloom; top-dress and place out of the house for an autumnal bloom; cuttings may be put in, and will soon strike.

IN THE STOVE:

General Operations.—*Air*, give liberally. *Atmosphere*, keep moist. *Baskets*, dip in water, or syringe. *Climbers*, train, and give close attention to keep them neat. *Cuttings*, put in where required, and pot off those of last month, if rooted. *Insects*, especially *red spider*, keep down. *Shade* plants in bloom, to prolong flowering. *Syringe*, use frequently. *Temperature*, fire-heat will be unnecessary. *Top-dress*, the whole stock may be gone through, and the pots washed. *Water* liberally and judiciously.

Cultural Department.—*Achimenes*, those in bloom will require a liberal supply of water; such as are intended to flower in mid-winter months should now be potted. *Amaryllis*, withhold water from such as are going out of flower, and remove from the house, to harden off. *Aphelandras*, place a few in bottom heat for winter decoration. *Franciseeas and Gardenias*, when their bloom is over set them out of the house, in a cool frame. *Gesnerias, Gloxinias*, etc., put off cuttings, and repot young plants: the latter will strike well by leaves. *Ixoras* that are in bloom will require plenty of water, and occasional syringing, but avoid the bloom; young plants repot and tie out. *Orchids* in flower will retain their blossoms much longer if not kept at too great a degree of heat. Water liberally with rain or soft water, that has stood some time in the house. Shade should be given in bright sun.

QUESTIONS, ANSWERS, AND REMARKS.

New Bedding Plants.—If you or any of the able contributors to your pretty little work were to give a list of the best and most approved new things for bedding purposes, each spring, I believe it would be very acceptable to your subscribers, and to none more so than to—*Amelia*. [We thank our respected correspondent for her useful suggestion; we had prepared a few descriptive remarks on the newest or best bedding plants, for our last number, but were obliged, through press of matter and standing communications, to omit them. The following plants are all *good:—Verbenas*, Duke of Cambridge, fine dark purple; Admiral Dundas, crimson, an excellent bedder; Miss Trotter, a splendid scarlet, which will be an universal favourite; Field Marshal, dark purple, a desirable variety; Madame Abdt and Jacquirita, two new continental varieties of excellent habit, being compact and very dwarf, colour rich mulberry or maroon; Madame Plantamour, light rose, with a dark eye, very handsome; Rosy Gem, this makes a capital bedder, bright rose; Standard Bearer, fine violet-purple, with a distinct white eye, makes a splendid object in a bed, being very conspicuous and free flowering; Victory, somewhat like the preceding, but a lighter colour, and must be well pegged down; Mrs. Foster, white; Noel, rich scarlet, with white eye and dark centre, a large trusser; Blue Bonnet, pale lilac-blue, a rather novel variety. The above are all free-growing sorts, and of distinct colours. In *Petunias* we would call attention to two continental striped varieties—Marquise de St. Innocent and Dr. Andry, both beautifully striped, carmine and white, the latter variety being the most showy; Springfield Rival, crimson, very good for an effective bed. *Scarlet Geraniums:* Indispensable makes a beautiful edging to beds of the other varieties, being very dwarf and neat in habit, and flowers abundantly; Attraction, a large trusser; Lady Downes, very free, rosy carmine colour, compact and dwarf; Princess Royal, bright rosy pink, dwarf, and very free blooming; Alma and Mountain of Light, are excellent variegated sorts, the former a great improvement on Flower of the Day, which it somewhat resembles. *Shrubby Calceolarias:* Orange Perfection, light orange, stiff compact habit, and abundant bloomer; Gold Finder and Erecta are two excellent yellows; Aurea floribunda, a very profuse-flowering variety, which every one should possess; General Pelissier, crimson, very fine; King of Sardinia, rich crimson-red; Cleopatra, pale sulphur colour, dwarf and compact, Rubra, light red; Yellow Dwarf, compact, clear yellow. In *Heliotropes*, Miss Nightingale is the finest light variety, and Beauty of Boudoir a capital dark; both of excellent habit.—Ed.]

A few of the best Fuchsias.—*One who has profited by the Cabinet* will feel obliged to the Editor, or any subscriber, who will favour him with a list of a few of the best Fuchsias of the light and dark classes.—*Truro.* [The following are all of first-rate merit:—Queen Victoria, crimson tube and sepals, reflexed, with a clear white corolla. Queen of Hanover, fine pure white tube and sepals, carmine corolla. Clio, white, with ruby-scarlet corolla, free bloomer and stout flower. Mrs. Story, clear white corolla, with scarlet tube and sepals; well reflexed, fine. Venus de Medici, tube white, sepals light pink shaded, corolla large, violet-blue, distinct. Duchess of Lancaster, tube and sepals white, corolla rosy violet, pretty and free flowering. Maid of Kent, white, reflexed, with a plum-coloured corolla. Emperor Napoleon, deep scarlet-crimson tube and sepals, well reflexed, with a deep violet corolla, a large fine waxy-looking flower. Beauty of the Bower, scarlet, with a dark purple corolla, reflexed, fine. Donna Joaquina, scarlet-crimson, tube very short, sepals reflexed, corolla violet-blue, distinct and fine. General Williams, stout tube and sepals, reflexed, bright scarlet, corolla violet-purple. Ed.]

Drying Succulents for the Herbarium.—I believe I have hit at last upon the right way of drying succulent plants, and such as are apt to come to pieces; and if nobody has thought of it before, it is really worth telling you. I had previously tried hot water, but that made the specimens mouldy; then a hot iron, but that is tedious, and it spoils the flowers; pricking the leaves all over with a penknife or a fork, so as to let the juices escape, is a great assistance in drying Orchids and Hoyas, but the specimens look unsightly after it; and chloride of calcium papers are too much trouble, except in the case of pet specimens. I now simply put the plants into a large bottle, with weak spirits of wine, for a day or two, which kills them effectually, and makes them dry almost as quickly as other plants.—*James Motley, Esq., Benjarmassin, Borneo.*

The Lowest Tribes of Vegetables are not only minute, but very simple in their structure. The blue mould found in bread and other farinaceous articles of diet, when examined by the microscope, will be seen to consist of a number of upright stalks, surmounted by a spherical ball at the top. This mould is in fact a species of fungus, and the round heads contain innumerable small black seeds or sporules, which, when the plant has arrived at maturity, burst from their coverings, are scattered about, and floating through the atmosphere, are ready to fall upon other pieces of bread, and grow up into fresh fungi. If an apple is cut across, and allowed to remain in a damp situation for a few days, the surface will also be covered with a mould of a similar character. The fungi here have even more of the arborescent form, and approach somewhat to the mosses. The grey lichens which so abundantly incrust rocks and stones are also simple vegetables, produced from a small seed, which, fixing itself on the flinty rock, by means of a tough mucilaginous juice, becomes the centre from whence others radiate, till a large circular patch is produced. Mosses and ferns are vegetables somewhat more complicated; and hence we ascend to herbs and shrubs, the towering palm and the majestic oak of the forest.

STANDARD ORNAMENTAL SHRUBS.—When grown in tubs or ornamental boxes, and placed along the sides of a straight, broad walk, at intervals in the flower garden, or terrace, they have at all times a pretty appearance. This is more especially the case with the Laurustinus, which flowers from November to May; the plants may be formed by training up a single stem, divesting it of side shoots as soon as they appear, and when high enough the head will be readily formed. The Laurustinus, when in bloom, far exceeds the orange tree, the numerous heads of waxy white flowers expanded and the red buds of those not open have a charming appearance. Standard Rhododendrons may be formed in the same way, which will come into bloom when the Laurustinuses are going out. The Bay, also, makes one of the best standards, delightful alike for its handsome and finely scented foliage. Arbutuses in bloom and fruit, and red and yellow berried Hollies are treated the same. *Cotoneaster microphylla, buxifolia,* and *rotundifolia* bear a profusion of white blossoms and pretty red berries, which, with the Hollies and Arbutuses, make beautiful objects throughout the winter.—*W. Green.*

AMARYLLIS BELLADONNA.—These bulbs are very hardy, but to flower them well two things should be kept in mind, which are essential—a strong growth of the leaves, and perfect rest from midsummer to their period of flowering in September. If the leaves sprout early, and are damaged by *severe* frost, so that there is not a vigorous growth in spring; or if they are preserved green by a wet summer, after the period of rest; or if they have not moisture in September to promote the blossoming, it will fail. In pots, it is very easy to regulate these points; but in the open ground, it can only be done by putting a glass covering or awning over the bulbs, so as to keep off the rain in a wet summer. A south wall promotes the drying of the roots, and they very seldom flower well in the middle of the garden.—*Paul W.*

TUSSILAGO FRAGRANS.—I have grown this plant for some years; and although it is not often seen, I know of few things that can afford so grateful a scent at the time of year when it is in flower. At the back of my house I have a sloping sandy bank, which I prepared for the Tussilago, putting plants in, nine inches apart, in June. The whole of the bed I covered with sandy loam. They have done well; with no treatment except an occasional stirring of the soil, to keep down weeds. They flower from October (and by the help of a barrowful of leaves, thrown over some of them to retard their bloom) until the commencement of spring.—*Rusticus, Derby.*

LINUM GRANDIFLORUM RUBRUM.—This most beautiful and showy annual has generally been considered to be difficult to raise from seed, if, however, treated in the following way it will be found to succeed well. Soak the seeds in lukewarm or tepid water for about twenty-four hours, and when taken out rub them dry with a soft cloth, in order to clear off all the glutinous or gummy solution which surrounds the seeds; they may then be sown in the open border in the same way as any of the hardy annuals. If, however, it is preferred to sow in a frame and transplant, the plants should be pricked out in the open ground when quite young, and the same treatment followed as is pursued with the *Rhodanthe Manglesii.*—*E G. H.*

HYDRANGEA INVOLUCRATA, VAR. FLORE PLENO.—All the species of this beautiful genus are welcome in our gardens. Every one knows the Hortensia (*H. Hortensia*), the first species introduced to Europe. This elegant shrub was received from China, at the Royal Garden of Kew, in 1790, and from thence plants were obtained by some French cultivators, by whom it was soon extensively distributed. The plants produced at first only small and few flowers, in consequence of its proper treatment being imperfectly known. But when subsequently they were grown in a peaty soil, and freely supplied with water in the period of their vegetation, they soon assumed a very different appearance, and their real beauty was discovered. This fact alone might teach us to abstain from pronouncing a decided opinion on the merits of a newly introduced plant before the proper method of treating it has been proved by experiment. Many species of the same genus have since then been introduced, but these are not so beautiful as the old one. Their umbels are smaller, and the blossoms are less highly coloured; moreover, with the newer sorts, the large unfertile flowers are less numerous than in the old species, the umbels of which are almost compact. This monstrosity is apparently the result of long experimental culture in the Chinese and Japanese gardens, and it is scarcely to be doubted that ultimately the smaller flowers will be made to bloom as large and as profusely as the others. The beautiful species which has called forth these observations would seem to confirm this supposition. Its unfertile exterior flowers are double, of a bright rose colour. According to Siebold, who, however, does not appear to have introduced living plants of it, it grows on the highest mountains of the island of Niphon and Sikok (Japan), where it flowers during the months of July and August. It is grown plentifully in the gardens of these parts, and forms a handsome plant, with a stem about three feet high. According to some travellers, there are four varieties of it; one lilac, the others with flesh-coloured, yellowish, and rose-coloured flowers. The leaves are opposite, rounded at the base, or nearly heart-shaped.—*Van Houtte's Flore.*

Rise of Botanical Science.—At the revival of learning in the fifteenth century, the botanical knowledge of the ancients began to be available in the language of the original treatises; and in the following century, the Germans commenced original inquiries into the science, and first began to illustrate their treatises by wood engravings of the different plants. The first work of this kind was written by Otto Brunfels, a native of Strasburg. To this succeeded, about the middle of the sixteenth century, the work of Gesner, a professor of Zurich, in which the first attempts are made at a classification and systematic arrangement of plants, founded chiefly on the characters of their flowers. The taste for botany, now excited, began to spread throughout the chief states of Europe. Kings and nobles engaged in the study, and gardens were established for the cultivation of the most rare and useful productions of the soil. We are principally indebted to the establishment of learned societies, in the seventeenth century, and to the invention of the microscope, for the first attempts at a more minute examination of the structure of plants. In the Royal Society of London for the promotion of science, which was liberally supported by Charles II., several philosophers occupied themselves with the dissection and microscopical examination of plants. Of these, the most distinguished was Nehemiah Grew, secretary to the Society. His discoveries are recorded in his elaborate work, the "Anatomy of Plants," illustrated by numerous engravings. In it we find the first notice of the twofold sex of plants, which doctrine he had learned from Thomas Millington, a professor in Oxford. Malpighi and Leuwenhoeck also distinguished themselves as investigators of the minute structure of plants; and the same subject was ardently pursued by several members of the French Academy of Sciences, founded in 1665. The doctrine of the sex of plants, which had been obscurely hinted at by Grew, was experimentally illustrated by Bobart, and fully established by Ray.

Tulips when raised from seed require a peculiarity in management, which would not readily occur to any cultivator, who was not either a vegetable physiologist, a reader of books on florists' flowers, or a tulip-grower of great experience. The young bud of the tulip is formed on the radicle which descends from the seed; and when the seed is sown in a bed or in a deep pot of light free soil, the radicle will often penetrate to the bottom of the pot or bed, and scarcely produce any bulb at all. The same thing takes place with the different species of bulbous Iris when raised from seed, and, to a considerable extent, with seedling bulbs of every kind. In order to prevent this, and to cause the radicle to exhaust itself in the form of a bulb, instead of in the form of a long slender root, the seeds should be sown in pots or pans, not above three inches or four inches deep; or, if in beds, a bed of slates or tiles should be formed three inches or four inches beneath the surface. When this is properly attended to, the bulbs produced by seedlings the first year will be as large as those of three years' growth, where no stop was given to the descent of the roots.—*E. L.*

TUBEROSES.—Last season I had a nice display of these things, which I should wish to be more commonly grown. Some experience a difficulty in blooming them. I treat them thus:—I plant the bulbs in small pots, and place them in a hotbed frame; when the flower-spike has pushed about six inches, they are turned out of the pots, under a south wall, in a situation protected from strong wind, where they come into bloom in July, and continue for a long period. Where there is the advantage of being grown successfully near a sitting-room window, the delightful perfume is most agreeable. To grow them vigorously they should be planted out in a compost of equal parts of well-rotted manure and loam, to the depth of a foot or more, and on a dry substratum. When growing they require a good supply of water.—*P. P.*

ACACIA JULIBRISSIN.—The Silk tree, or the *Durukhti ubrishoon* of the Persians, forms a drooping tree like the willow; the flower has silky fibres, of a delicate pink colour, and would resemble a swansdown puff tinged with rose. It sends forth a most fragrant perfume, and its name bespeaks its appearance. It thrives in Teheraun in the open air, the thermometer ranging between 16° and 110° Fahrenheit; but it does not succeed so well at Tabriz, where the temperature is colder and more variable. It grows wild in the forests bordering the Caspian Sea. There is one in the garden of the Prince Royal at Tabriz, and another in possession of the English officers there, who are obliged to protect it from the winter cold.—*Keppel's Journ. from India.*

PELARGONIUM TRICOLOR, grafted on the top of tall stems of *P. cucullatum* or *P. zonale*, forms very handsome heads, which keep in bloom all the summer, producing its crimson and white flowers in abundance.—*W.*

ON GRAFTING THE MOUTAN PÆONY.—The method I practise for multiplying the *Pæonia Moutan* is as follows:—In any time from the beginning of September to the middle of March, I select some good tubers of *P. officinalis*, or any other hardy herbaceous kind, and take off cuttings of *P. papaveracea*, or whichever of the tree kinds I wish to increase; I then slit the tuber from the crown downwards about two inches, form the scion like a wedge, insert it into the slit of the tuber, and fit the barks on one side as exactly as possible, binding them well together with good bass, over which I put one turn of copper wire, to prevent the parts from separating after the bass is decayed. They are then put into pots deep enough to allow the mould to cover the top of the tuber, placed in a cold frame or pit, kept close, rather dry, and shaded from the sun for the first month, and from frost during winter. When they have perfected one season's growth, I plant them out and treat them like established plants.—*J. Nash.*

CULTURE OF TRILLIUMS.—Few can deny the beauty of this tribe, and also their curious form; the ease with which they may be cultivated renders them well adapted for every garden. I find fifteen species mentioned in the "Hortus Britannicus" as being grown in English gardens, but I doubt very much whether so many distinct kinds are to be found here. Seven species include all that I am acquainted with, namely, *Trillium sessile*, *erythocarpum*, *pusillum*, *cernuum*, *erectum*, *pendulum*, and *grandiflorum*. The most suitable treatment is the following, and is very simple; they bloom freely with me every year, in April and May, and are a great ornament to my limited garden. They grow freely in the open air, requiring no covering in shady places, and a mixture of marsh or heath soil, with river sand, promotes their beauty better than any other soil, and in this they will in a few seasons form handsome bushes. The seed is ripe in August, and if sown directly they will come up the following year. They may be sown in pots, or in a shady peat border, and the most of the seedlings will blossom the third season. These plants add much to the attraction of a spring nosegay, and I should wish to see them oftener than one does.—*Semper Idem.*

GUERNSEY LILIES.—Of this beautiful tribe of plants much has been said, and the great beauty of the far-famed Guernsey Lily is a recognised fact, but it is sunk into comparative insignificance by the varieties *coruscans*, *Fothergilii*, and *venusta*. The blood-red crumpled petals of the one and the vivid vermilion of the other are exquisitely beautiful; whilst the last, when contrasted with the original, is a larger flower, nd of a much more brilliant rose colour, the flowers having the appearance of being spangled all over with gold dust when the sun shines upon them. The varieties all thrive well in a light sandy loam, and require encouragement and protection during the winter months, with an abundance of air, so as to perfect the development of their foliage. Their usual season of blooming is the latter end of August or commencement of September, previous to their starting into growth. The following are some of the best varieties :—*Nerine coruscans*, crimson-scarlet, the edges of the petals are beautifully undulated ; *N. flexuosa*, delicate shade of rose colour ; *N. Fothergilii*, vermilion-scarlet, splendid variety : *N. humilis*, delicate lilac, flower prettily undulate, a dwarf grower ; *N. sarniensis*, the common Guernsey Lily, rose ; *N. undulata*, small lilac-rose ; *N. venusta*, larger flower, spangled rose, a splendid variety.—*B. Saunders, St. Helier's. Jersey.*

WELLINGTONIA GIGANTEA.—I have read the description of the " Wellingtonia," as found at the Mammoth Grove, California ; in most respects it gives a correct and clear account of those great natural wonders, but I think I can furnish you with some particulars that you may consider interesting. Mr. Lane (brother-in-law to Lord Exmouth) and myself, while making a tour in the interior of California in March last, visited the Mammoth Grove, and found our anticipations more than realized by a sight of that magnificent grove of trees. We had not the means of measuring the height of any of them but the one that had been cut down near the inn. We also counted the rings on the stump of this tree, from the centre to the outer edge on one side, and found them to be 1568. My friend and myself ascended, to the height of 120 feet, the tree that the bark has been stripped from, by the aid of stakes driven into the tree. The first branch is some feet above this height. The tree did not appear to have suffered from the loss of its bark, although more than two years had elapsed since it was stripped. We picked up several cones, principally from the " Mother of the Forest" (the tree that the bark has been taken from), part of which I brought to England, and gave to Mr. Pince, of Exeter, who has now in his nursery a large number of thriving young plants from them. I also obtained, on my return to San Francisco, a lithographed view of those trees, which is most accurate, and which I forward to you with the description. I have also a small branch with cones attached to it, from the " Mother of the Forest," which was cut off by a rifle-ball—the only way to get at it.—*Jno. Kelly. Gard. Chron.*

RANUNCULUSES.—At present the appearance of Ranunculuses is strong, and very favourable to vigorous bloom. As we are within a very short time of the flowering season, I will shortly supply you with some notes on varieties derived from this year's bloom.—*Carey Tyso.*

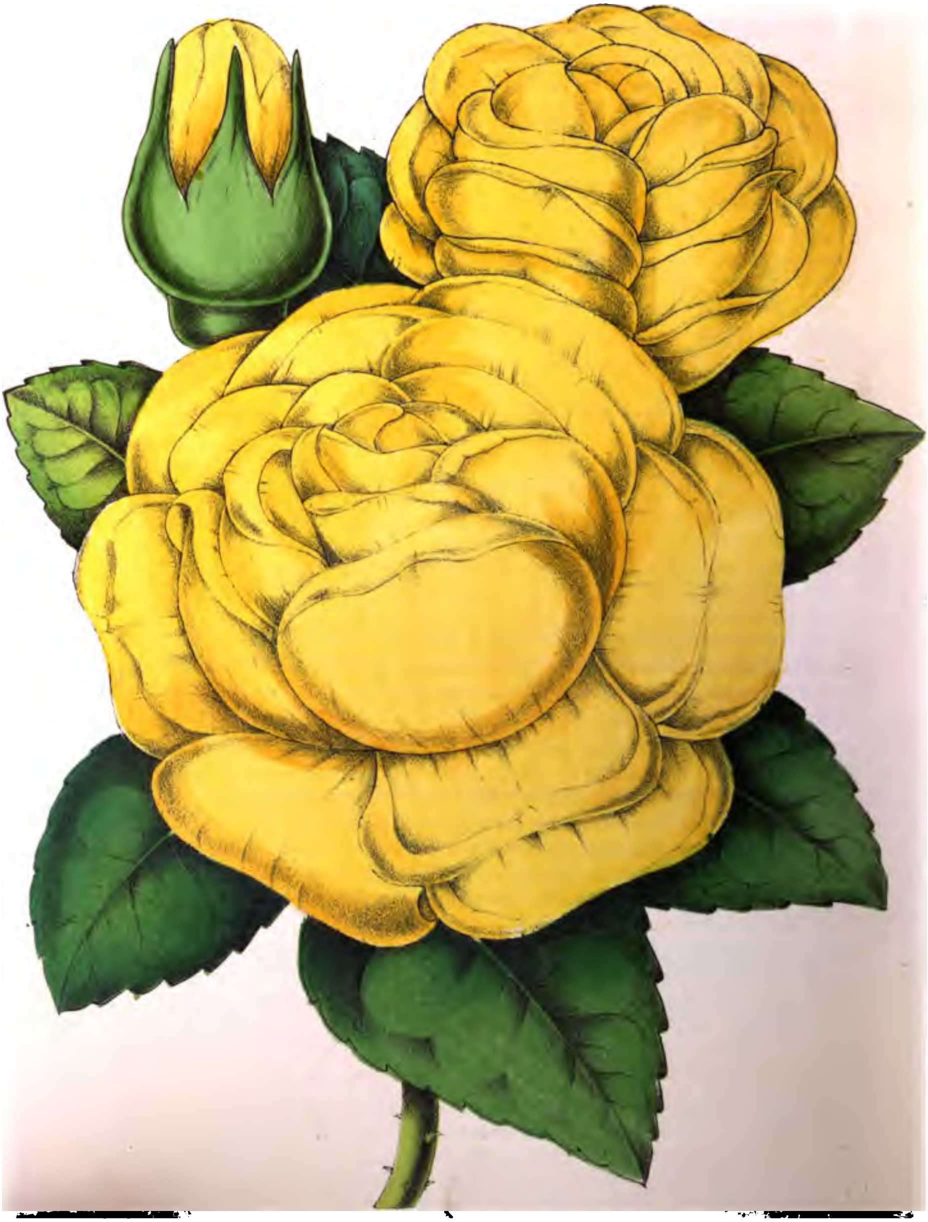
TREATMENT OF LACHENALIAS.—These bulbs, which are rather small in size, should be planted, two or three in a pot, in September ; select good sound bulbs for blooming, and pot the small offsets by themselves. The soil should be a mixture of peat and sand, about three parts of the former to one of the latter, and a small quantity of leaf-mould. The pots should be well drained, and when the bulbs are planted, remove them to a frame where they will have light, and not be exposed to the cold autumnal rains. Keep them in this situation until November, or until the nights become quite frosty, and supplying very little water. At that time they may be removed to the parlour or to the greenhouse, placing them in a light situation, and watering them cautiously until they begin to grow. In February the flower-stems will begin to appear, when a more free supply should be given, though still with care ; the flower-stems will now shoot up, and in the course of a few weeks will be beautifully in bloom, remaining so for two or three weeks, or much longer, if they are kept in a partially shaded place. In May, when the foliage begins to turn yellow, the pots may be removed to the open air for a few weeks, when the bulbs should be taken out of the pots and laid away in a dry, cool place, there to remain until wanted again for planting the following autumn.—*J. H.*

DWARF TREES.—There are many miniature trees, which typify their more gigantic brethren of the forest, that may be introduced with advantage to grounds of limited extent, and which, after many years' growth, arrive at only a few feet elevation. Of Elms there is *Ulmus viminalis;* Maples, *Acer Creticum ;* Beech, *Betula nana ;* Alder, *Alnus glutinosa oxycanthæfolia ;* Chestnut, *Pavia flava ;* besides which are others less known, as *Tilia laciniata ; Pterocarpa Caucasica*, a type of the Walnut ;

termining who should be the recipients of valuable plants too few in number to be made a subject of general distribution, and the Council intend to ascertain experimentally whether this suggestion will work. In the meanwhile, in addition to other means of satisfying the wishes of the Fellows, communications have been opened with Peru, Cuba, and Southern Australia, whence it is expected that supplies of seeds will be received. Arrangements of this nature with distant countries cannot, however, be completed without considerable delay.

The annual election of Council and officers was then proceeded with, when the Lord Bishop of Winchester, Mr. Wentworth Dilke, and Mr. J. R. Scott were announced as having been elected into the Council in the room of Sir Morton Peto, Sir Joseph Paxton, and the Rev. Mr. Hawkins. His Grace the Duke of Devonshire, Mr. Wilson Saunders, and Dr. Royle were reappointed President, Treasurer, and Secretary, for the ensuing year, and Mr. Leach and Mr. R. Glendinning were elected Auditors.

May 5th.—Rev. L. V. Harcourt in the chair, forty-three new members were elected. Of plants in flower of different kinds, there was a good display, among which was a magnificent collection of Orchids from Messrs. Veitch, comprising Dendrobium speciosum, the charming D. Farmeri, D. Pierardi, the rare Uropedium Lindeni, with long flowers, looking like Lady's Slippers turned inside out; Trichopilia coccinea, Cattleyas, Vanda suavis, the scarce Odontoglossum Pescatorei, and other kinds, all well grown and beautifully flowered. Mr. Pilcher, gardener to S. Rucker, Esq., sent Burlingtonia fragrans; the new Chysis Lymminghi, with pink-tipped petals, a rose-streaked lip, and yellow throat, and a handsome new Trichopilia, of a brilliant rose colour. Mr. Snow, gardener to Earl De Grey, sent a handful of Smith's Yellow Noisette Rose, pretty, but inferior to the yellow, shown at last meeting. Mr. Braid, of Hendon, had Alonsoa Warcsewiczi, Boronia Drummondi, and a white pink-spotted Pelargonium, called Blanchefleur, reported to be valuable for forcing. Messrs. E. G. Henderson, sent a variegated-leaved Dahlia; Mr. Gaines a very large-flowered Amaryllis, called magnifica; Mr. Turner, a collection of Auriculas, consisting of some of the best sorts; Messrs. Henderson, of Pine-apple Place, greenhouse plants, consisting of buff-coloured Rhododendrons, several Eriostemons, a bush covered with flowers of Elæocarpus dentatus, Boronias of various kinds, etc. Messrs. Cutbush also contributed a collection of greenhouse plants, in which were a purple semi-double Azalea, loaded with blossoms; Hypocalymma robustum, a shrub, with spikes closely set with pink flowers, like a Hawthorn; Statice Holfordi; the orange-flowered Erica vernix, and others. From Mr. Forsyth, gardener to Baron de Rothschild, came beautiful stove and greenhouse plants, among which, Erica lutea was especially striking; also, some select variegated-leaved plants. Dracæna lutea, a drawing of Farfugium grande, the very handsome Coltsfoot-like plant, with yellow blotched leaves, figured by us, and specimens of rice-paper, with a plant of it, came from Mr. Glendinning, of the Chiswick Nursery. Messrs. Veitch showed a new crimson-flowered bulb from California; the brilliant red-flowered Correa cardinalis; Fuchsia Dominiana; Nicotiana fragrans, a kind of tobacco, with long tubular blossoms, like those of a white Petunia; Rhododendron Dalhousieanum, quite a tree, loaded with greenish yellow flowers; the charming R. javanicum and jasminiflorum, and a new species from Moulmein, with pure white blossoms measuring five inches across, and crimped like Azalea crispiflora. This we regard as a valuable acquisition to greenhouse varieties of this genus. Messrs. Veitch also showed two boxes of cut hardy Hybrid Rhododendrons—one filled with pale, and the other with crimson sorts, all beautiful. From the Duke of Northumberland's at Syon, also came cut Rhododendrons from the open ground, where they had no protection. Mr. Ellis, gardener to Dr. Bunce, of Woodford, sent four well-grown Lycopods and Ferns; also as many Pelargoniums. Mr. Allnutt furnished a fine bush of Camellia Sasanqua rosea, twelve feet high; and Mr. Luscombe, of Kingsbridge, Devon, cut blooms of Cantua dependens; the specimens exhibited were from an open wall, but even in Devonshire the plant is found almost too tender; as a greenhouse plant it is difficult to cultivate, and therefore seldom seen. Amphicome Emodi was furnished by Col. Fairhead. The Gardens of the Society supplied three kinds of Chinese Azaleas, three Achimenes, Eutaxia myrtifolia, Ceanothus papillosus, Rhododendron formosum, and some other interesting things. Of fruits and vegetables, there was an excellent display.



ISABELLA GREY.

The Floricultural Cabinet.

JULY, 1857.

ILLUSTRATION.

ROSE, ISABELLA GREY (Tea).

THE charming Rose selected for our present illustration is one which will be hailed with pleasure by all growers of this lovely tribe. In addition to its possessing all those qualities that are desirable in a Tea Rose, it has the additional recommendation of being a very free-growing variety, bearing its rich golden blossoms in great abundance, while its constitution is vigorous. The flowers are large, full, and of a rich golden yellow, not partaking of the usual numerous tints of buff, lemon, and salmon, which have hitherto been so common in this class. It appears to have been raised from seed by a Mr. Grey, in South Carolina, with whom it bloomed most profusely, and although exposed to the great heat of that climate, appeared to suffer no injury, and in this country it has also kept its character. As noticed by us in a late number, a plant was exhibited at the Horticultural Society's rooms last April, having forty fully expanded blooms, diffusing a rich fragrance, and exciting considerable notice.

The old Double Yellow Rose, so remarkable for its shy-flowering qualities, will now be entirely superseded by the present beautiful variety, which bids fair to become a universal favourite, both as a pillar Rose, or for planting in the conservatory. For its culture we refer our readers to an article on the Tea Roses in the present number.

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ON PHLOXES IN POTS.

BY MR. J. SMITH, OXON.

BEING a devoted admirer of these popular flowers, and having had considerable experience in the management of a large number of plants annually, a few hints on the cultivation of Phloxes in pots may perhaps prove acceptable for the *Cabinet*. I must premise that, in order to have Phloxes in perfection, they should be renewed from cuttings every three years at least, whether for the border or pot culture. Early in March I select the most healthy and vigorous plants struck last season, and pot them in large-sized pots, in rich loam, with a little sand and manure from an old hotbed, trimming the plants to a couple of shoots. When the stock is potted off, I make a selection of all the dwarf-growing kinds; which I place near the glass in a cold pit; the taller sorts are sunk out of doors in a sheltered situation. The plants under glass require air freely, and attention is necessary not to let them become too dry for want of water, but, after their growth has advanced, they may be stimulated by a little weak liquid manure given every other or every third time. This contributes to the size of the corymbs, as well as to the general vigour of the plants. As soon as they begin to show flower, they may be introduced into the greenhouse, and with judicious management they may be kept in succession from early in summer to late in autumn, making a fine display. To have large plants, I plunge them out of doors when bloom is over, and cover them through the winter with two or three inches in depth of ashes; in spring I take them up, repot and trim them to five shoots. In repotting, I make it a rule not to reduce or injure the ball of earth, which I find the plants will not bear with impunity.

REMARKS ON THE TEA ROSE.

TEA ROSES require rather more care in their culture than most others; being naturally somewhat delicate, a little protection is necessary in the depth of winter in our climate, which is also the case even in the gardens of France and Northern Italy. They will, however, bear a considerable degree of cold, where the soil is *well drained*, sustaining much more injury from the alternate freezing and thawing of a naturally moist soil. When a border is formed for the growth of Tea Roses out of doors, the first thing necessary is to provide a sufficient drainage, and for this purpose the soil should be removed to a depth of eighteen or twenty inches, and a layer of brickbats, lime-rubbish, or other porous material, laid at the bottom to at least nine inches in thickness. Over the drainage a foot deep of prepared compost is to be laid next, consisting of good loam and decomposed manure in equal proportions, to which a liberal allowance of white or river sand may be added. In this soil the plants will flourish remarkably, as they delight in a light rich soil. The bed may be made rather high with advantage, and where the natural soil is light, the incorporation of a sufficiency of manure will be all that is necessary. When winter has fairly set in it is desirable to afford a little protection from its severity, and nothing is more effectual perhaps than a few dry branches of the common wild Fern (*Pteris* *aquilina*), which may be stuck in and about the plants. Furze, or coverings of straw, may be used, however, keeping in view the fact that they ought not to be covered so close as to exclude the air altogether; a protection from the violence of hard frost is all that is required when the soil has been well drained. Many persons take their plants up at the setting in of winter, although, under the proper precautions, such attention is needless. The foregoing remarks apply more particularly to such plants as are grown on their own roots. Grafted or budded Tea Roses, when established, will in general brave our severest winters unscathed.

This class forms excellent subjects for the conservatory; here, trained to pillars, trellises, or over wirework, they form handsome objects, and few plants look more attractive than a well-grown and full-bloomed Tea Rose. Where space is limited, or from any cause it is desirable, the stems of the plants may be introduced into the house, the roots being planted in a border, properly prepared outside. The best stock for working Tea Roses on is perhaps *Rosa Banksiæ*, var. *Fortunii*, Mr. Fortune's white Banksian Rose; although the Dog Rose, or Blush Boursault, will answer almost equally well. For forcing and pot culture under glass, this class is without equal; worked plants force well, and do not require to be established one year in pots, for if potted in October or November, and forced in a gentle heat in January and February, a fine display will be made in March and April. The extreme beauty of their lovely blossoms and attractive foliage will well repay the attention they have received. When forced, and in a state of luxuriant growth, the Tea Roses have a peculiar delicacy and softness of appearance that charms every one.

Among the most distinct varieties known to be worth culture (for many varieties which do well in France will not succeed in our climate), are the following:—*Adam*, a fine Rose, of a beautiful blush colour, large and very full, of a delicious scent, and vigorous habit. *Devoniensis*, one of the best in this class; it possesses much hardiness of character, vigorous habit, a fine flower, pale yellow or sulphur; a most desirable kind, now well known; it excited considerable notoriety when it made its first appearance. *Princess Adelaide*, pale yellow; a large and full bloomer, possessing a good habit. *Gloire de Dijon*, figured already in the *Cabinet*; another extremely fine variety, pale buff, salmon, and rose; the blossoms are of immense size, and very full; this superb flower ought to be in the possession of every grower. *Elise Sauvage*, yellow, with an orange centre, very beautiful, of dwarf habit, and well adapted for forcing or pot culture. *Vicomtesse de Cazes*, yellow, with a copper tinge in the centre, very double. *Comte de Paris*, a superb, large, and full flower, clear flesh colour, and dwarf habit; a good forcing variety. *Bougère*, shaded rose, large and fine; one of the more hardy sorts in the Tea class. *Goubault*, bright pink, with a buff or salmon-coloured centre, very large and sweet scented; adapted more especially for pot culture. *Safrano*, a handsome buff, large, but rather a thin flower; its habit is vigorous. *Souvenir d'un Ami*, shaded rose and salmon, large and fine; a beautiful Rose, of vigorous habit, and succeeds admirably under glass. *Madame Bravy*, very double, cream colour, rather dwarf, but, like the former, does better in the house than out of doors, where the blossoms do not open well. *Niphetos*, pure white, sometimes pale lemon, very large, full, and sweet, of vigorous habit; a very delicate and beautiful Rose. *Princess Helene du Luxembourg*, light yellow, large and very full, a robust variety. *Souvenir d'Elise Vardon*, cream colour, with a rosy salmon or blush centre, large-sized blossoms, and robust habit. *Madame Villermoz*, a large flower, white, with flesh-coloured centre, very full, and of vigorous habit. *Smithii*, pale yellow, or straw colour, does best under glass, as the blossoms are not well perfected in the open air. *Triomphe du Luxembourg*, a superb, large, and full flower, coppery rose, vigorous, and an excellent variety for forcing. *Madame de St. Joseph*, a beautiful Rose, salmon colour, of large size and very double, more adapted for pot culture than in the border. *Prince Esterhazy*, light rose, very fine size and double, habit good.

In the above selection of kinds, such only have been enumerated as are among the choicest of the class, it being intended as a guide to those who have but a limited acquaintance with this charming section, though there are many other varieties of great merit.

HISTORICAL REMARKS ON THE TASTE AND STYLE OF ORNAMENTAL GARDENING.

BY HORTULANUS.

(*Continued from page* 154.)

ALMOST all the ancient country-seats in this kingdom were either manor-houses, abbeys, or castles belonging to the barons. The first were only superior farm residences, surrounded by enclosed orchards, meadows, and arable land; abbeys had generally kitchen gardens and orchards, and were surrounded with lofty walls and deep moats; the baronial castles were fortified places, with for the most part little space for gardens, if we except the terraces with a few beds of flowers. Regal palaces and many of the principal baronial establishments had also parks for game, and chases for deer. After the restoration of monarchy, in the person of Charles II., the gentry acquired a greater taste for parks and ornamental gardening, which, as already stated, was carried to a greater extent afterwards, by Kent, and his successors in the art of landscape gardening. During the reigns of William III. and Anne, the prevalent style in gardens, as well as parks, was a mere imitation of the Dutch. Examples of this were Hampton Court, Kensington, St. James's, and the gardens of the two Universities. Many of the avenues then planted still remain as evidences of the formality then in vogue. The fortified mansions of the nobles were altered, by pulling down and clearing away the outworks, and leaving the building on a naked lawn, removing the gardens and offices to a considerable distance, often a mile off, at the boundary of the park; cutting down or removing masses of trees, and making a winding approach. If woods were situated too near the house, their skirts were thinned, in order to give lightness to the interior and airiness to the view; if a bare mound appeared in view from the front, it generally had a clump of trees placed on its summit. A strip of what was termed "pleasure ground," consisting of a narrow gravel walk, bordered with shrubs, formed the communication between the gardens and house. Where water could be brought into view from the windows, it was made to assume the form of a square pond, or straight canal, and in either case was called "a sheet of water."

In the time of Henry VIII., when abbeys and monasteries were suppressed, they passed, through favour or purchase, into the hands of laymen, becoming houses of the richer class of yeomen, or country gentlemen of moderate fortune, remaining for a great length of time in nearly their original state; except perhaps so far as the filling up of a moat, or the pulling down of a wall or two, the grounds were kept for the use of tillage or the cattle, as they had before been used, and such of these residences as remained entire, to comparatively modern times, kept their character until the rise of a better era in the art of ornamental gardening, when the houses of small country gentlemen received a certain degree of embellishment. The hedges round the house were removed to extend the pasturage; evergreens flanked the buildings; trees hid the outhouses, ricks, and barns, being also planted in groups on the lawn, in the distant hedgerows, and corners of the fields, to give the whole farm a park-like appearance, from which this style received the title of "ferme ornée."

HORTICULTURAL SOCIETY'S EXHIBITION.

CONSIDERABLE interest and much speculation having been excited as to the style and character of the forthcoming exhibitions of the Horticultural Society at Chiswick, consequent on its reinstatement under new rules and regulations, the 3rd of June (the day fixed for the first exhibition under the new management) was looked forward to with no little excitement in the gardening world, mingled with some misgivings. We are happy to say, however, the result has proved so far satisfactory, that there is now no room for doubt on the subject; the former popularity of the Chiswick shows under the new *regime* is likely to be regained. The exhibition on the 3rd ultimo was a successful one, and indeed exceeded the expectations of numbers.

There were several novel features, which we look upon as decided improvements, such as the conversion of the large curvilinear conservatory into a pavilion for exhibition purposes for the more tender subjects, as Orchids etc., which were arranged on stages along each side, allowing space for a broad gravel walk up the centre. Another good improvement was the exhibition of the large pyramidal and other *pot Roses* placed on raised circular beds, bordered with turf, under a large tent on the lawn. There were also some beds of *Rhododendrons* in the same erection, and plenty of space allowed to view the collection with comfort. The next novel feature worthy of being recorded was the display of horticultural erections, implements, tools, and manufactures of every description, which is a step in the proper direction, and one that we have for some time advocated; among these, however, were a number of military tents with camp equipages, which we were unable to connect in any way with the peaceful pursuits of horticulture.

The grounds were kept up in good style, and the new American garden, recently laid out by Mr. McEwen, deserves praise. This gentleman has proved himself well worthy of the important trust he has undertaken, and is a most accomplished gardener.

Our report of the exhibition must necessarily be brief, but as many of the plants produced had been exhibited at the Crystal Palace, we refer our readers to the more lengthened report of that show, especially as concerns the new plants. Messrs. Veitch showed a *Cyclobothra*, from California, a frame bulb, of a deep golden yellow, somewhat in the way of *C. barbata;* also *Ceanothus Lobbianus*, from the same region, a very free-blooming, stiff, upright bush, somewhat resembling *C. papillosus*, bright blue; and a *Thibaudia*, with rosy red-coloured flowers, having a very waxy appearance, and white mouth. The same gentleman had some new *Rhododendrons*, including *formosum elegans*, a hybrid, bright rose, white centre, and maroon spots. M. Linden, of Brussels, had *Cyanophyllum magnificum*, a beautiful variegated plant, with large leaves, eighteen inches long, and six wide; *Bœmeria argentea*, with foliage a foot long, and half as much across, lead-green, mottled with bright green in the centre; two *Marantas*—one, *M. fasciata*, dark green leaves, with lateral stripes of bluish lead colour; the other, *M. pulchella*, marked with dark and light green, alternately. Mr. Bragg, of Slough, had a new seedling *Begonia*, of dwarf habit, reaching about a foot high, with thick, light glossy green foliage, the flowers free, large, and pure white, with which the yellow stamens contrasted well.

Of seedling *Pelargoniums* several were good ones—as *Bellona*, deep crimson upper petals, edged with scarlet, lower rosy red, with veined blotches of crimson, a showy flower; *Fairest of the Fair*, an abundant bloomer, of good habit, pure white, with a lilac-purple blotch in the upper petals, wants a little more even outline; *Mazeppa*

(Turner), deep upper petals, with a narrow edge of rosy scarlet, lower deep rose, with a large spot of maroon; *Belle of the Season* (Hoyle), very showy, upper petals deep crimson, shading off to scarlet, edged with white, lower blush-white, a good trusser, but not first-rate form; *Linda* (Hoyle), upper petals deep maroon, shading off to purple veins, and edged with white, lower white, with purple spots, distinct and showy. Of Fancies, Mr. Turner showed *Acme*, deep maroon-crimson, narrowly edged with clear white, a large pure white centre, good habit, truss, and form—it was awarded a first-class certificate; *Mrs. Turner*, brilliant purple-rose, with a narrow edge of white, and clear large centre, good habit, and free bloomer. There was also a good collection of *French Spotted Pelargoniums*, very attractive, but generally deficient in form; for decorating the greenhouse, however, they will be erelong more extensively cultivated.

There was a fine show of *Azaleas*, not generally such large plants as we are accustomed to see at exhibitions, but well bloomed. Of *Rhododendrons*, Mr. Standish and Mr. Noble had some beautiful varieties, which had a very pleasing effect on their raised beds. *Roses*, by Messrs. Lane and Son, Paul, and others, were very fine. Stove and greenhouse plants were in considerable numbers, and comprised some well-grown plants; the principal exhibitors were, among amateurs, Messrs. Dods, Green, Taylor, Barter, and Rhodes. *Orchids* were numerous, and exceedingly well-bloomed, fine-grown plants; the principal exhibitors in this class were Mr. Pilcher, Mr. Gedney, Mr. Williams, Messrs. Jackson and Son, Mr. Carson, Mr. Keel, Messrs. Veitch and Son, and Mr. Parker. The plants remarkable for fine foliage were in good condition, from Messrs. Veitch, as also the collection of variegated plants from the same firm; as well as those of Messrs. Jackson and Mr. Salter, who showed a collection of twenty hardy sorts, some of them remarkably handsome, which will furnish matter for the *Cabinet* in a future number. *Ferns* were shown by Messrs. Parker, Veitch, and Jackson, which were generally well-grown, handsome plants, composing a fine bank, covered with their lovely fronds. *Lycopods* were more attractive than the Ferns, and in greater numbers, principally furnished by the foregoing growers. *Tall Cactuses*, some of them very fine specimens, and remarkably showy, were from Mr. Green and Mr. Mortimer. *Cape Heaths*, from Messrs. Peede, Cutbush, Rhodes, and Taylor, were well flowered. Some rare hardy *Conifers*, from Messrs. Veitch, included the *Wellingtonia*, *Thuja gigantea*, *Cephalotaxus Fortunei*, *Abies Hookeri*, and many other fine plants of the same highly ornamental and interesting class. Fruits were limited in quantity, but good on the whole. In order to do justice to the exhibition, we should be compelled to trench too largely on our pages; ample materials have, however, been afforded us for comment in future numbers of this Magazine.

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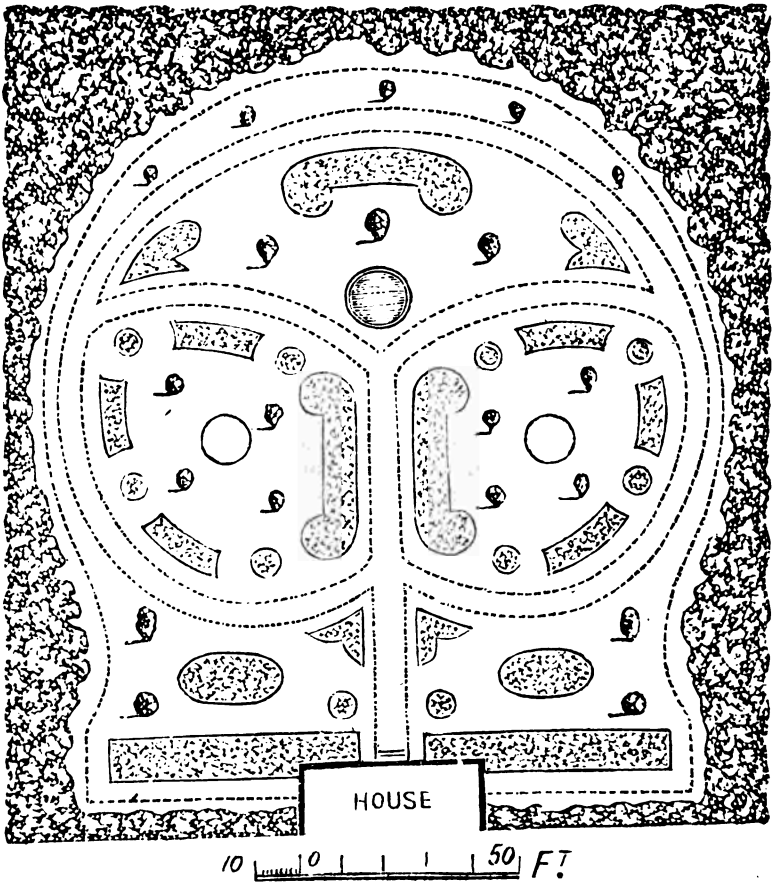
DESIGN FOR THE GROUNDS OF A SMALL VILLA RESIDENCE.

BY. T. RUTGER, ESQ.



THE design accompanying these remarks is intended for the frontage gardens of a villa. It is requisite that but little be said in particularising its delineation, as the clumps, shrubs, pond, etc., tell for themselves. A remark may be necessary in regard to the two circles which are placed one on each side of the lawn, and are intended for circular pavements, whereon to raise pedestals for anything ornamental to be placed upon them that taste may suggest. A covered seat or alcove might be erected at the extreme end if desirable, with a branch walk to lead to it; garden seats may also be placed in any part of the grounds, where it may be thought they are wanted, and if placed on wheels they would be the more easily removed from place to place.

GRAND FLORAL EXHIBITION, CRYSTAL PALACE.

ON the 30th of May, the first grand floral fête of the season took place at this justly popular place of entertainment, at which there was a great assemblage of visitors, comprising a considerable proportion of the nobility, as well as of amateur and other cultivators.

The grounds were in the best possible order, and, together with the Palace itself, displayed the best taste and perfect management. The shrubberies were very judiciously planted with flowering shrubs, and had a very gay appearance: a few of the most conspicuous among them were some fine plants of *Weigelia rosea*, which we never before saw bloom in such profusion; many fine specimens of *Rhododendrons* of every shade of colour; some fine *Ghent Azaleas*, of all shades from yellow to scarlet; *Sulphur-coloured Cytisuses*, *White* and *Yellow Brooms*, *Double Pink* and *Scarlet Thorns*, *Laburnums*, *Gueldres Roses*, *Persian Lilacs*, and *Double-blossomed Whin*, intermixed with large patches of *White*, *Blush*, and *Purple Rockets*, *Erysimum Peroffskianum*, and other showy things, all combining to produce a delightful scene, to which a large mass of *Rhododendrons* and *Azaleas* in fine bloom, planted on a gentle slope, greatly contributed. Near to the *Rosarium* we noticed a plant of *Wistaria* (*Glycine*) *Sinensis*, grown as a standard, about six feet high, with a flat spreading head, measuring from eight to ten feet across. From the abundance of its bloom, not a leaf was to be seen; when grown in this style, and seen from below, its large pendent racemes of purple, Laburnum-like blossoms are seen to great advantage; it was an old grafted plant that had been well pruned-in annually. On the terraces we observed some very attractive beds, planted with large crimson *Wallflowers* in the centre, edged with a row of *Cheiranthus Marshalli*. A large mass of *Tree Pæonies* must not pass unnoticed; a great number of their handsome white and purple blossoms were fully expanded. Some large beds on the terraces were also filled with *Ghent Azaleas*, of mixed colours—yellow, orange, red, and scarlet.

The interior of the Palace presented a very gay appearance, from the excellent arrangements which had been made for the exhibition of the plants, as well as from the brilliant assemblage of ladies and visitors. Along the immense nave of the building tables extended to a length of about 240 yards, well filled on both sides; in addition to which, other tables along the great transept afforded eighty yards of additional space, which made a total length of plants of six hundred and forty yards!—the great majority of which were well grown and flowered, and comprised the choicest of each class. The exhibition of fruit also was very extensive, and exceedingly fine.

Among the "new and rare" plants, Messrs. Veitch, as usual, contributed very largely: one of the most conspicuous was a large branch of *Embothrium coccineum*, said to be perfectly hardy; it appears to form a large evergreen shrub, belonging to the natural order *Proteaceæ*, a most abundant bloomer; the flowers narrow, long, tubular, and curved, of a brilliant scarlet, closely set among the dark shining foliage. Other new things comprised a species of *Pernettya*, from Patagonia; a much-branched, dwarf shrub, somewhat similar in growth and bloom to the old favourite *Andromeda floribunda;* the flowers are, however, if possible, more abundant, but not so pure a white. *Dendrobium Veitchi*, from the East Indies, the calyx and petals lemon-yellow, with a large green lip, veined with maroon, and a tuft of fine hairs behind each flower. *Odontoglossum Rickenheimi*, from Mexico; sepals and petals marked with crimson and yellow transverse bands, the liplilac-purple, the flowers borne in a long raceme. *Ixora acuminata*, the blossoms small, white, tube pale green. *Rhododendron jasminiflorum*, with its waxy white flowers, although not strictly new, yet somewhat rare, and very handsome. Messrs. Veitch's specimen was well grown. *R. Veitchii*, with its large crisped white flowers, has already been described. *R. Brookeanum*, a very distinct but straggling grower, the flowers very thick and waxy, of a clear golden yellow, about an inch and a half across, its foliage is a very light green, long and narrow. *R. Princess Royal*, a hybrid between the preceding and *R. Javanicum*, in form intermediate between its parents, the flowers clear salmon rose; a strikingly handsome and distinct hybrid. A new *Cissus*, with leaves similar in form to those of the beautiful *C. discolor*, but much larger and not so showy; their ground-colour deep green, marked with irregular spots of dull pink along the transverse veins, the under sides brownish red. *Meyenia erecta*, of this plant Messrs. Veitch had a large specimen measuring two feet across; the flowers are peculiarly rich, making a beautiful contrast in their colours, the corolla being of a deep violet-plum, with a clear yellow throat, in form resembling *Thunbergia alata*. A large plant of *Tradescantia discolor*, with its fine foliage of yellow and green. *Grevillea Drummondii*, with pale yellowish green flowers, and narrow, graceful foliage. The same firm exhibited also a healthy young plant of *Wellingtonia gigantea*, two feet high, well clothed with branches, spreading to the same distance. Mr. Glendinning had two fine plants of his handsome *Farfugium grande*, and several specimens of *Abies Kempferi;* he also showed a large plant of *Gesneria Donckelaari*, two feet high, with a spike bearing a large number of its pretty crimson flowers, the leaves more than a foot in diameter. *Leptodactylon Californicum*, a fine plant, was shown, eighteen inches high, bearing a number of its pretty, rosy, Phlox-like flowers. Messrs. Cutbush had a specimen of *Solanum purpureum*, with large, flat, velvety leaves, in form like the common Coltsfoot (*Tussilago*), a foot across, deep olive-green, with the veins pure white, and, as well as the stalks, somewhat spinose. Mr. Epps exhibited a couple of seedling *Ericas*, one with flask-shaped flowers, white, with a green band surrounding the end of the tube, glutinous; the other, named *E. tricolor Eppsii*, of a like form, the base of the blossoms orange-red, shading off to white, with similar green band, glutinous. An ornamental basketful of seedling *Gloxinias*, of the upright class, tastefully arranged in moss, produced a pretty effect. A fine standard plant of *Rhododendron Dalhousianum*, four feet high, was exhibited, which had nearly twenty-five fully expanded blossoms, borne in threes at the extremities of the branches, measuring from three to four inches across, of stiff and waxy substance, white, tinged with green at the base. From Messrs. Jackson were *Begonia picta*, a native of the East Indies, having large foliage, olive-green, with an irregular blotch of lead colour between each principal vein. *B. vicinifolia maculata*, a pretty cut-leafed species, with a neat cut leaf, variegated with brown. *Eucharis grandiflora*, a fine stove bulb, with beautiful, white, thick, Narcissus-like flowers, and fine large foliage of a brilliant green. *Rhododendron Blandfordianum*, a large plant of this was shown, with but few flowers, small, and pale yellow. Messrs. Henderson, of Pine Apple Place, sent a tall specimen of *Lilium giganteum*, with a spike of eight flowers.

Of new hybrid productions there were a few good things. The seedling *Pelargoniums* of 1856-7 comprised *Cherry-ripe* (Turner), delicate flesh, the upper petals with a small crimson spot, lower lighter spots of the same tint, distinct in colour, but not first-rate in form; *Imperatrice* (Turner), upper petals crimson-maroon, edged with rose, lower clear rose, large pure white centre, and good substance; *Mr. Marnock* (Turner), upper petals blotched with crimson, edged with rose, lower ones deep rose, with a distinct spot in the way of *Sanspareil; Etna* (Turner), upper petals deep maroon, with a narrow edge of orange-red, lower flame coloured, tolerable substance and outline; *Rose Celestial*, a large flower, upper petals purple-crimson, broadly edged with lilac-rose, lower clear rose, with white centre; *Evangeline* (Fouquet), upper petals maroon-purple, narrowly margined with lighter purple, lower petals deep purple-rose, with a veined spot and white eye, good high colours, and tolerable form; *Signora*, upper petals maroon, edged with purple, lower purple-rose, small spot, white centre, large and good; *Hesperus*, upper petals brilliant crimson, edged with fiery scarlet, lower petals salmon-red, rather small, but a good flower; *Loveliness*, upper petals with a small, shaded blotch of crimson, broadly edged with a lighter shade, lower deep, clear salmon-rose, snow-white centre, fine form and substance;

The Bride, upper petals a large shaded blotch violet-purple, passing off to a broad edge of pure white, lower petals very clear white, good form and substance, one of the best, and likely to prove the most useful flower shown, it being also of excellent habit; *Dorothea*, this had only one bloom expanded, which appeared as near perfection as possible, upper petals intense maroon, with a narrow, even edge of rosy purple, lower clear rose, pure centre, and fine substance; *Rosalie*, upper petals maroon blotch, broadly edged with rosy scarlet, lower petals clear rosy scarlet; *Florence* (Foster), upper petals maroon, edged with rose, lower petals clear rose, centre white, fine form and smooth outline. There were other seedlings exhibited, which our space will not allow us to describe; those above named, however, are the most select.

The successful competitors, first in each class, were the following:—For twenty stove and greenhouse plants in flower (£30), Thomas Whitbread, gardener to H. Collyer, Esq., Dartford; for twelve ditto (£18), G. S. Dods, gardener to Sir John Cathcart, Cooper's Hill, Chertsey; for six ditto (£10), J. Peed, gardener to C. T. Gabriel, Esq., Norfolk House, Streatham; for twenty-five stove and greenhouse plants, in or out of flower, grouped for effect (£25), Messrs. Veitch and Son, Chelsea; for twenty Orchids, exotic species (amateurs), (£30), Mr, Gedney, gardener to Mrs. Ellis, Hoddesdon; for ditto (nurserymen), (£30), Messrs. Veitch and Son; for twelve ditto (amateurs), (£15), S. M. Carson, gardener to W. F. G. Farmer, Esq., Nonsuch Park, Surrey; for six exotic ditto (£10), G. S. Dods, gardener to Sir John Cathcart; for twelve greenhouse Azaleas (£18), John Green, gardener to Sir Edward Antrobus, Lower Cheam, Surrey; for six ditto (amateurs), (£8), Thomas Page, gardener to W. Leaf, Esq., Park Hill, Streatham; for twelve new greenhouse Azaleas (£10), John Green, gardener to Sir E. Antrobus; for six Elichrysums (£4), William Laybank, gardener to Thomas Maudesley, Esq., Norwood; for ten Cape Heaths (£8), B. Peed, gardener to T. Treadwell, Esq., Norwood; for six Cape Heaths (amateurs), (£6), George Young, gardener to W. Stone, Esq., Dulwich Hill; for six tall Cacti, species or varieties in flower (£7), John Green, gardener to Sir E. Antrobus; for twelve Roses in pots, distinct (£10), Messrs. Paul and Son; for six ditto (amateurs), (£5), Alexander Rowland, Rosenthal, Lewisham; for twelve Calceolarias, distinct (£5), Mr. John Dobson, Isleworth; for six Fuchsias, distinct (£4), Thomas Reed, gardener to T. N. Farquhar, Esq., Sydenham; for twelve Pelargoniums, distinct, in eight-inch pots (amateurs), (£10), William Nye, gardener, to E. Foster, Esq., Clewer Manor, Berks; for twelve ditto (nurserymen), (£10), C. Turner, Slough; for six fancy ditto (amateurs), (£5), A. Bousie, gardener to the Right Hon. H. Labouchere; for six fancy ditto (nurserymen), (£5), C. Turner, Slough; for the best new or rare plant in flower (£3), Messrs. Veitch, for *Rhododendron Veitchii;* for ditto, not in flower (£3), R. Glendinning, for *Farfugium grande;* for the best hardy ornamental plant, remarkable for its fine habit, or the beauty of its foliage (£3), Messrs. Veitch, for *Wellingtonia gigantea;* for the best seedling Pelargonium of 1856-7 (£1), Mr. E. Beck, for *Bride;* for six plants of *Nepenthes* with pitchers (£10), W. Gedney, gardener to Mrs. Ellis, Hoddesdon; for six plants of *Anæctochilus* and *Physiurus* (£3), Messrs. Veitch, Chelsea; for twelve exotic Ferns (£4), Mr. Robert Parker, Holloway; for British Ferns (£3), Mr. T. Simms, Foot's Cray, Kent.

The amount awarded in prizes at this magnificent Exhibition was, for plants, £760 5*s*., and for fruits, £139 15*s*., making a total of £900. We regret that we are unable to give a more particular account of the many new seedlings exhibited, which, however, having ample materials, we shall notice from time to time. The number of visitors was large, and every one appeared to enjoy the occasion vastly. We can do no more than recommend our country cousins, and every one who has a taste for flowers or fine fruit, to come and see the floral fêtes at Sydenham, for themselves.

REMARKS ON THE CULTURE OF THE GREENHOUSE AZALEA.

BY MR. G. W. FORMES, WINCHESTER.

SCARCELY any flower in the greenhouse is more attractive than a well-grown specimen of the Indian Azalea. The abundance of its bloom, the delicate and brilliant shades of its colour, its compact growth, and pretty foliage, combine to render it an universal favourite for the decoration of the conservatory or greenhouse. A well-grown plant, of from four to five feet high and as much across, when in bloom, presents a blaze of beauty, with scarcely a leaf to be seen, which is not surpassed by any other inhabitant of the same house.

With the following treatment, the Azalea will be found to flourish well, having practised it myself for many years, with great success. When the plants have done flowering, if it is found necessary to give them a shift, prepare some compost, consisting of two-thirds of boggy peat and one-third of good rotten leaf-soil, to which add a good sprinkling of silver sand. It is not well to sift the soils, as it renders them too close, and abstracts all the vegetable fibre. They are best mixed by being chopped fine with a spade. The pots used should be new, if possible, or very cleanly washed and dried, and one size larger than that the plant was growing in previously. Copious drainage must be allowed, for nothing hinders Azaleas more than stagnant water; on this will depend the health of the specimen.

When potting the plant, it is not well to place its crown too high above the level of the soil, nor too low; for in one case the roots are apt to become exposed to the air, and in the other, they are liable to rot with the water: very slightly raised towards the centre of the pot, I consider best. When the plants have received their shift, I place them for a time in the stove, and give them every attention as to water, which has been allowed to become tepid and soft, by standing near the pipes or flue all night. I also use the syringe about once every day, in order to give the foliage a good wash, and prevent insects. If the weather is very hot, I apply it two or sometimes three times a day. It will be found greatly to assist the growth and health of the plants, which, in the course of two months, will have made fresh shoots six or eight inches long.

They must be allowed to remain in their present situation until they have formed their next season's flower-buds, which, if the shoots are examined, may readily be felt at their extremities. The plants must then be removed into the conservatory or greenhouse to harden them a little, allowing, in fine weather, plenty of air; or, if more convenient, they may be stood out in the open air, where they will be cool and airy, until the greenhouse plants are taken in for the winter. If the plants have bloomed very profusely last season, they will perhaps have in some degree exhausted themselves; in which case tie some moss round the principal stems, and keep it regularly moist; this will cause them to break, and grow freely. Those cultivators who have not the advantage of a stove may keep their plants in the greenhouse till the buds are well set, even if it allows but two or three weeks for setting them in the open air, which is of great service to them. Under such treatment, they will make plenty of root, and receive no injury from over-watering, for it will scarcely be possible to give it too frequently, as the close mass of fibres absorb a large quantity of that element. Indeed, under any other system, it is almost useless to attempt to bloom several varieties; and all, instead of bearing a meagre supply of flowers, here and there one, will be an entire mass of bloom, and if the stock of plants admit of the proper supply, the blooming season may be prolonged from the autumn to June.

The accompanying descriptive list of Azaleas comprises none but such as are really good, and may prove useful to the readers of your interesting periodical.

Admiration, a fine flower, pure white ground; some of the flowers having large flakes of carmine.

Beauty of Europe, pink, striped with carmine; a very distinct and free-blooming variety.

Coccinea superba, light scarlet; a most profuse flowerer.

Glory of Sunning Hill, bright salmon-rose, a fine double flower; very free bloomer, and one of the best.

Criterion, delicate salmon-pink, edged with white, and spotted with crimson on the upper petals; a fine form and substance, very fine flower.

Coronata, beautiful bright rosy red; distinct and free bloomer.

Extranii, violet-rose, fine form.

Juliana, orange-scarlet, deeply spotted, fine form; one of the best.
Louis Napoleon, rich crimson-violet; a very distinct and showy semi-double flower.
Madame Meillez, white, flaked with violet; good form.
Arborea purpurea, a very large violet-purple flower, with bright crimson spots on the upper petals. This variety, which is one of the most showy, is known under several names, as *conspicua purpurea*, *purpurea elegans*, etc.
Murrayana, clear rose, a fine form.
Queen of Perfection, rosy purple, deeply spotted.
The Bride, the best of the whites; flower very pure waxy white, and fine foliage. A free bloomer.
Perryana, orange-scarlet, fine form; one of the best.
Symmetry, light salmon-red, fine shape.
Barclayana, large white, striped, and flaked with violet; one of the best of the stripes.
Iveryana, a splendidly shaped flower of good substance; white, some of the blooms striped with rose; one of the best.
Sir Charles Napier, an immense flower, salmon-red, fine.
Stanleyana, clear light red, good shape and substance, large flower; one of the best.
Narcissiflora, a double white; free bloomer.
Dilecta, large, showy salmon-rose; good substance, distinct and fine.
Eulalie Van Geert, a fine large flower, blush-pink; a rich spotted flower of good substance, distinct, and very fine.
Empress Eugenie, transparent rose, well spotted; a finely shaped flower.

REVIEW.

Popular Greenhouse Botany; containing a Familiar and Technical Description of a Selection of the Exotic Plants introduced into the Greenhouse. By AGNES CATLOW. London: Lovell Reeve, Henrietta Street. Square 16mo, 20 coloured plates, pp. 312. Price 10*s.* 6*d.*

MR. REEVE deserves the thanks of all lovers of flowers and nature in all its phases, for the excellent series of little works which he has already brought out on various branches of natural history, especially Botany, and of which series the present is a fresh volume; like the former ones, very neatly got up, carefully illustrated, and containing some judicious remarks.

The authoress observes, "During the comparatively desolate period of winter, when remembrance of the past only brings regret, and hope for the following season is rather too distant to afford much consolation, the greenhouse offers its valuable services, not merely by nurturing and preserving our favourites, but by presenting to us its own peculiar gifts, in those delicate exotics which will not bear exposure to our rude clime, but must be fostered by protection from the outer air, and occasionally by artificial heat. A greenhouse is now generally considered an indispensable addition to a garden of any pretension; and, as Cowper says, 'who loves a garden, loves a greenhouse too,' for the very efficient reason, that, 'there blooms exotic beauty, warm and snug, while the winds whistle and the snows descend.'"

The pages of this little work are devoted to greenhouse gardening, treating of those plants which are generally introduced under the shelter of glass, both summer and winter, and also those that only require a security from the cold of the latter season. A greenhouse is, in fact, simply a place secure from frost; for when the thermometer falls so low that freezing is apprehended, then a fire to heat the flues or pipes will raise the temperature within the house, causing the plants to enjoy a propitious climate, whilst all out of doors feels the severity of the weather. Here the mild air allows vegetation to go on, and, contrasted with the state of the garden, the flowers seem doubly valuable, and more exquisitely beautiful at this season than in the height of summer. A visit to this Crystal Palace in miniature, when out-of-door pursuits cannot be followed, is a source of pleasure which few will deny themselves who have the means to gratify it.

In the erection of a greenhouse, and choice of a suitable locality for it, no plans are given, as the style, size, and aspect depend entirely on circumstances, and are better left to experienced persons on the spot. It is therefore supposed that the house is built in the best possible manner; but it is advised, where practicable, that it should be divided into two parts, one to be kept warmer than the other for house Ferns, which also love a moister atmosphere than most other plants; or for forcing flowers in winter, to ornament the conservatory or sitting-room; or this portion may be used for propagating. A slate cistern in one corner should not be forgotten, which may receive rain from the outside; the water is then of the same temperature as the house, and in a more suitable state for the tender plants. It is a good plan also to have a small building attached, to be used as a potting-house, fitted up with a convenient table, with shelves and drawers for bulbs, seeds, and tools.

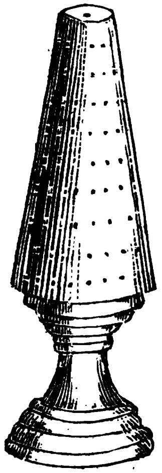
The house now only requires to be filled with plants, and managed with ordinary care, with the assistance of a gardener who has some experience in the subject; one is generally attached to a good garden, who has the management of the heating apparatus, who knows when windows should be open or shut, water used or withheld, and all the little details of this kind, which must be attended to by a person who is on the spot at all times and seasons. Still a few plain directions may be useful to note here; as, that air must be admitted with caution if there be a tendency to frost, but in summer and all warm days freely, or the plants become tender and grow straggling; in winter, water is to be administered very cautiously, only keeping the earth just moist, but in spring increasing in quantity, and particularly when the plants are flowering and in sunny weather. The sooner fires can be dispensed with, the better it is for the plants in general; but still precautions must be taken against even slight frost, by shutting up the house early and covering with mats. If insects appear on the plants, the house must be fumigated, or each plant washed carefully. In summer, a rolling blind is almost indispensable; for as the house stands more or less facing the south, the plants will otherwise be liable to be scorched, or otherwise injured in their delicate blossoms."

"Popular Greenhouse Botany" will prove a serviceable book to the amateur, and as such we recommend it.

A PYRAMIDAL BOUQUET-STAND.

BY MR. D. STEAD, FLORIST, MARSH GROVE, HUDDERSFIELD.

FLOWERS being among the choicest ornaments of our dwelling-rooms and apartments, I have devised a small article intended for the purpose of arranging them with better effect than can be done by a mere vase or jar, and in which the water is ensured in contact with each particular flower-stem, preserving a fresh and beautiful appearance for a length of time.



The following is a description of my invention:—

The upper portion is a metal cylinder, pierced with holes all round, each of which is supplied with water poured in at a single hole at top. In this consists the ingenuity of the invention, which I can assure your readers is effected very completely: each hole is large enough to admit a flower-stalk, the water is close up to the hole, and is there retained. By means of this contrivance, flowers with short stalks may be used, and they retain their beauty unimpaired for some time.

[We are pleased with this Bouquet-stand, not only for the ingenuity displayed in its contrivance, but for the beautiful appearance it has when neatly covered with flowers.—Ed.]

NOTES ON NEW AND SELECT PLANTS.

ECHEVERIA CANALICULATA. Nat. Ord. *Crassulaceæ.* Although introduced from Real del Monte many years ago, this interesting Crassulaceous plant has not been before described by any botanist. It approaches nearly to *E. Scheerii* in the flower, but differs from that species, in the leaves being oblong, tapering, and channelled. The stem is short, thick, and fleshy; leaves four to six inches long, glaucous, somewhat tinged with purple; flowering stem nearly two feet high; raceme about nine inches; flowers brick-red, orange inside, near an inch long, a five-angled tube. Blossoms in the greenhouse in April. (*Bot. Mag.*, 4986.)

83. Gardenia citriodora. Nat. Ord. *Rubiaceæ*. A new Gardenia introduced from Natal by Messrs. Rollisson, in whose stove it has lately flowered. It forms a handsome spreading bush or evergreen shrub, about two feet high, bearing an abundance of pretty white blossoms, resembling in size and appearance those of the orange, of a delicious odour, similar to that of the same flower, from which circumstance the specific name originated; the leaves are elliptico-lanceolate, opposite, from four to six inches long, of a deep green. Well worthy of cultivation. (*Bot. Mag.*, 4987.)

84. Begonia Wageneriana. Nat. Ord. *Begoniaceæ*. Another addition to the known species of this extensive and pretty genus. It is a native of Venezuela, where it was discovered by the adventurous botanist whose name it bears, and by him forwarded to the Botanic Garden at Berlin; specimens have since found their way to the establishment at Kew. It is a free-flowering species, but of rather loose habit, growing from one to two feet high; the whole pale sea-green, except the male flowers, which are white, of small size, borne in small cymes or panicles; the leaves are from three to four inches long, glabrous, cordato-ovate. Dr. Klotzsch, in his work entitled "Begoniaceæ," proposes to subdivide the old genus Begonia; but, as Sir William Hooker justly remarks, "we deem it to be most accordant to nature to preserve the genus intact, and consider the so-called generic distinctions recently suggested as sectional characters." At any rate, before the new genera can be finally decided upon, the numerous species, comparatively unknown to Dr. Klotzsch, of India and other parts of the world, should be taken into account. Dr. Klotzsch proposes to call our present plant *Moschowitzia Wageneriana*. (*Bot. Mag.*, 4988.)

85. Xanthosoma sagittifolium. Nat. Ord. *Aroideæ*.—An old plant, not often seen in cultivation, but grown in the West Indies as an esculent, and a native of tropical America. It flowers in our stoves during the winter months. The leaves are of large size, some attaining almost three feet in length, broadly sagittate; the flower is a spathe, somewhat like that of the well-known *Richardia*, pale green or whitish, eight to ten inches long. (*Bot. Mag.*, 4989.)

86. Cypripedium hirsutissimum. Nat. Ord. *Orchideæ*.—From Java. It is a very attractive species, blooming in the stove in April. The flowers are large, measuring in their greater diameter about five inches; petals purple and green, with purple dots; lateral sepals green; lip deep green, large, with a tinge of purple. The flowers and stems are hairy, but the leaves smooth, glabrous, a foot or more long. (*Bot. Mag.*, 4990.)

87. Aquilegia eximia. Nat. Ord. *Ranunculaceæ*.—This very

pretty Aquilegia was raised by M. Van Houtte, from Californian seeds obtained by that eminent horticulturist in a collection gathered by M. Boursier de la Rivière. It flowered for the first time in Europe at M. Van Houtte's nursery, Ghent, in 1856. The flowers are bright red, shaded with orange, in appearance resembling a beautiful coronet, borne on long, gracefully curving footstalks; being quite hardy, it will no doubt prove a very acceptable addition to our stock of herbaceous plants. (*Flore des Serres*, 1188.)

88. Tanacetum elegans. Nat. Ord. *Comp. Anthemideæ.*—An interesting new Tansy from California, raised also by M. Van Houtte from M. De la Rivière's seeds. It has a very handsome finely pinnate leaf, which, before it is fully developed, is snow-white. The flowers are yellow, in size and appearance resembling those of the common cultivated species. (*Flore des Serres*, 1191.)

89. Achimenes (Nægelia) amabilis. Nat. Ord. *Gesneriaceæ.*—This charming species, originating in Mexico, is distinguished from all its congeners by the form and colour of its flowers, which much resemble those of *Gloxinia tubiflora*, being rather more than two inches long, the tube and corolla white, the former tinged with yellow, as is also the throat; they are borne on a long spike. The foliage is large, of a rich green, and pubescent; the rhizomes scaly. It is deserving of a place in every collection. (*Flore des Serres*, 1192.)

90. Hæmanthus cinnabarinus. Nat. Ord. *Amaryllideæ.*—According to M. Decaisne, we learn that the subject of this notice was received from Gabon in 1855. In habit and flower it resembles other plants of the same genus, but is remarkable for the bright cinnabar-red of its flowers, which measure an inch and a half across; the stamens are very conspicuous, and of the same tint. It will be an interesting novelty to the cultivator of stove bulbs. (*Flore des Serres*, 1195.)

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NEW AND SELECT GARDEN HYBRIDS.

AZALEA INDICA, var. GEM (Ivery).—A fine rosy red flower, slightly spotted at the base of the upper petals, fine form and stout substance, of medium size.

47. Azalea, General Williams (Ivery).—Rosy red, a large, bold, and stout flower, of good form; habit dwarf and compact. This is a great improvement on *lateritia formosa.*

48. Azalea, Lord Raglan (Ivery).—Distinct, but not striking in colour; it is a sport from the old *Iveryana*, and like it in its compact habit, large flowers, and profuse bloom; the blossoms are of fine form, but dull purple-red tint.

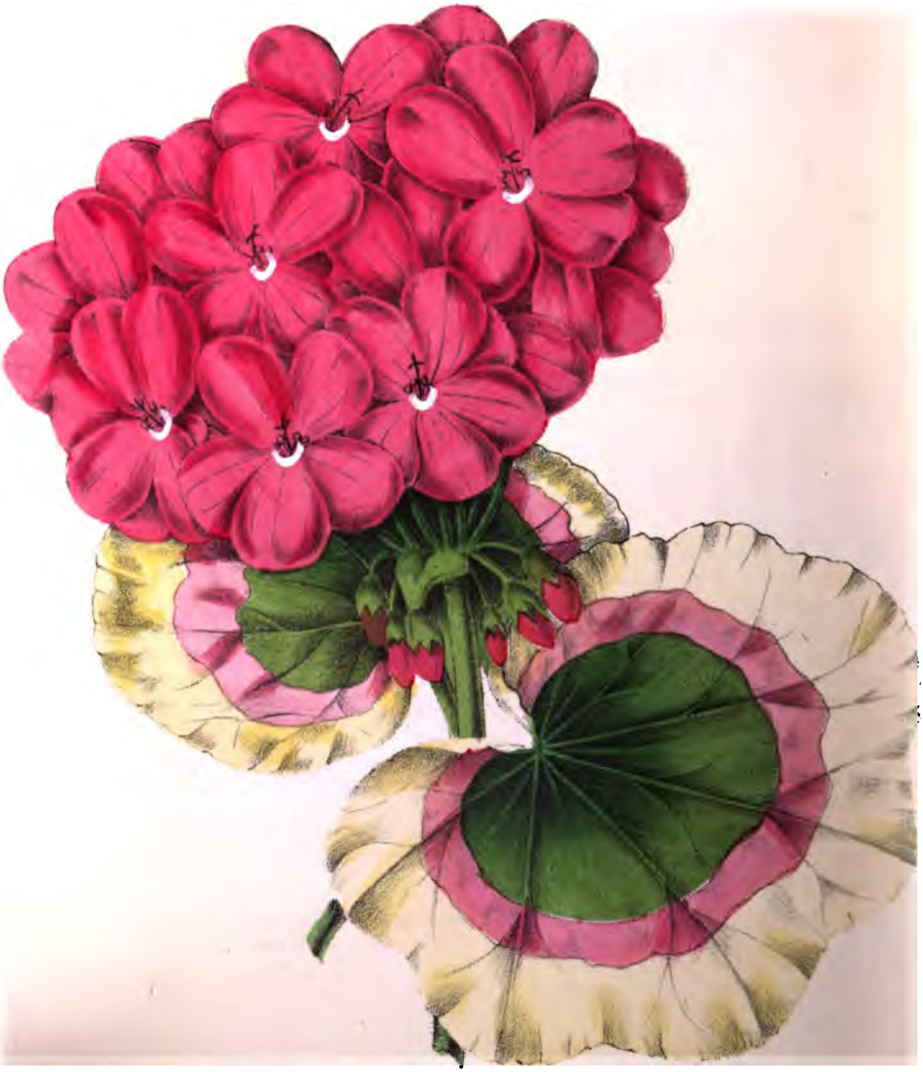
49. Azalea, Rosy Circle (Ivery).—An excellent-formed flower, the corolla of good substance, and nice outline. Its colour is light

QUESTIONS, ANSWERS, AND REMARKS.

Drying Specimens.—It may interest such of the readers of the *Cabinet* as are engaged in the formation of herbaria, to be put in possession of a speedy method of drying their specimens. I have tried the plan with great success; it is as follows:—Procure some slabs of the clay of which common flower-pots are made, of a size to correspond with the paper you intend to use, and an inch thick; have them made with cylindrical holes, half an inch in diameter, running right through, from side to side, so as to make about a dozen pipes or channels in each slab for the air to circulate through; the clay being very porous soaks up all damp, and as the air passes through them it is speedily carried off. Their use is to lay between every three or four groups of specimens. Besides being porous, their weight is generally sufficient for pressing. most plants flat, without any additional screws or wedges, commonly in use, and I find they are superior to the wooden lattice frames which have lately come into use. Their cost is trifling, and they may be made at any common pottery.—*J. J. H.*

Central Horticultural Society of Surrey, Leatherhead.—This Society held its annual summer show on the 12th ultimo. The weather on the occasion was most favourable, and it must have been very gratifying to the executive that their efforts were duly appreciated, the attendance being very numerous, comprising the *élite* of the town of Leatherhead and its vicinity. The display of plants and flowers was good, and the competition of a truly earnest character. Among many excellent specimens of horticultural skill, those exhibited by Mr. Kail (gardener to Earl Lovelace), Messrs. Chilman, Lavey, and Ansell, were particularly deserving of notice. Of Pelargoniums, the most attractive were eight fancies from Mr. Kail, which were awarded the first prize. Messrs. Ivery and Son were first in Azaleas. In Roses, the cut blooms were most attractive and numerous, forming a grand feature in the exhibition; some good collections were shown, and generally in nice condition. British and Exotic Ferns were in considerable force, and appeared to call forth marked attention from all present; Mr. Lavey was the successful exhibitor in this class. The stove and greenhouse plants were in good condition; amongst them a specimen of *Pleroma elegans* was a very conspicuous object, being well grown, and bloomed in a compact head, measuring two and a half feet through, and as much high, covered with blossoms. This fine plant appears to merit a more general cultivation than it has obtained, and is worthy of a place in every collection. Some well-grown Achimenes were exhibited, but thinly flowered; also a few good Gloxinias. Space forbids notice of many other plants well worthy of notice. Of miscellaneous articles there were some very interesting objects, one of which, an exquisite basket of flowers in wax, made by Miss E. Lloyd, of Leatherhead, was awarded an extra prize. A very compact design or model of a flower garden, the production of a very intelligent gardener, Mr. J. Clarke, of Nutfield, also obtained a prize, being very tastefully executed; two other interesting models failed to gain the good opinion of the judges. On the whole, this exhibition was of a superior character, and could not have failed to realize the highest expectations of its supporters. The Society is much indebted to R. F. Remington, Esq., for his urbanity and kindness in throwing open his grounds for their use, being admirably adapted for the purpose.—*A Correspondent.*

Rhynchospermum Jasminoides.—This is not a plant remarkable for great beauty, either in blossom or foliage. It is, however, very sweet scented, and on that account well worthy of cultivation. It does not usually bloom well, although I have had it sometimes almost covered with its spreading corymbose heads of white jasmine-like flowers. Cuttings root freely in sand, under a bell-glass in bottom heat; they are made from the half-ripened wood. When rooted, pot them off into a light, rather rich compost, well drained, and set them in a close frame until established; after this, a warm place in the greenhouse suits them best. As they will here make quick progress, they will require liberal shifts, and when in mature luxuriance they may have weak liquid manure in small quantities, or alternating with the other waterings; in winter, it is best to keep this plant rather dry. It is a capital thing for training on a greenhouse trellis, the strong shoots being stopped to equalize the growth. It is a native of Shanghai, introduced by Mr. Fortune to the Horticultural Society.—*B. B.*



FONTAINEBLEAU.

The Floricultural Cabinet.

AUGUST, 1857.

ILLUSTRATION.

PELARGONIUM ZONALE, VAR. FONTAINEBLEAU.

SINCE the introduction of *Flower of the Day*, by Messrs. Lee, a few years back, there has been a rapid and very marked improvement in the class of Scarlet Geraniums, especially with regard to ornamental foliage. For bedding purposes we have numerous excellent varieties, displaying great variation both of flower and leaf; and instead of the ill-formed and scarcely attractive sorts previously in cultivation, we have many flowers of fine form and beautifully contrasted foliage. The striking variety we figure in the present number is a very effective plant, either as an edging for a border, for massing, or as a pot plant. The flowers are of good form, produced in fine large trusses, and of a beautiful bright rosy pink. The foliage is large, and must be ranked as the most distinct of any yet out; the centre is green, surrounded with a clear rosy red zone or band, and broad, clear, sulphur-coloured margin, very deep and ample. Its habit is good, and the stems stout; altogether it is a decided novelty. Beds of this, with Scarlet and Purple Verbenas, will produce a charming effect. *Fontainebleau* was raised by Mr. Elphinstone.

We have appended a few descriptive remarks on the best sorts now in cultivation, all of which are much esteemed for their handsome foliage.

Alma.—Flowers clear scarlet; white variegated foliage; neat and compact habit.

Annie (Kinghorn).—Flowers bright scarlet, fine size and form; leaves large, margined with light cream colour; robust.

Bridal Bouquet.—Flowers equal to the preceding variety; foliage with a shaded red band, edged with white, very neat; habit dwarf and compact. A very pretty plant for pot culture.

Countess of Warwick (Kinghorn).—Flowers scarlet; foliage with a dark horseshoe mark shaded with pink, and margined with white.

Culford Beauty (Grieves).—Resembles Flower of the Day in habit; flowers of brilliant orange-scarlet, and leaves edged with deep sulphur. A fine trusser, very effective either for beds or vases.

Emperor.—Flowers bright scarlet, of fine form and size; foliage margined with pure silvery white.

Golden Admiration.—Flowers scarlet; foliage silver striped; habit dwarf and compact.

Golden Chain.—Valuable for its distinct foliage, flat and stiff, edged with golden yellow. Makes a beautiful border for a bed, and fine contrast when intermixed. A very useful and pretty variety.

Hôtel de Cluny (Elphinstone).—Flowers clear scarlet; leaves small, with green centre, surrounded with a red and dark band, bordered with pure white. A very neat, compact grower.

Lady Coventry (or Mangle's Silver Bedding variety).—Flowers worthless; foliage distinct, variegated with white; habit trailing, and well adapted for covering beds when pegged down.

Mrs. Lennox.—Flowers fine scarlet; leaves margined with very clear white; good for bedding.

Mountain of Snow.—Flowers scarlet; foliage edged with white.

Peach Blossom.—Flowers rosy salmon, or deep peach colour; leaves margined with white; habit dwarf, and adapted for pot cultivation.

Silver Queen.—Flowers pink; leaves variegated with white. An excellent variety for bedding or pot culture.

THE AURICULA.

BY P. THOMSON, ESQ.

OF all favourites of the garden, none is more worthy the attention of the florist than the Auricula; a flower of humble habit, but a perfect gem of beauty, and an evidence of the perfection which may be attained by the cultivator in his attempts to mould a flower to a given standard. In its wild state, and on its native Alps, it is a far different thing to the "green-edged," "white-edged," and "self-coloured" favourites that adorn many humble cottages in England. There it produces self-coloured and, generally, yellow flowers, growing on the steep and rugged mountain sides, often buried under a thick mantle of snow, that serves it as a protection from the rude frosts of the ungenial Alpine winters, and from being stimulated into premature vitality under the influence of rapidly increasing light and warmth. As the snows melt away, it makes quick growth, being assisted by the moisture and good drainage afforded by the sloping sides of its native mountains. As soon as its flowers and seeds are perfected it begins to decline, and sinks again into a state of torpidity. Although the Auricula of the florist is so different in appearance to this humble wild flower, so much so, indeed, that many would not credit the fact of its being the same plant, the nearer the treatment under culture is approximated to that nature gives them on their Alpine heights the better they may be expected to succeed, making perhaps a little allowance for the plant being somewhat more tender, and liable to disease in cultivation, than when in a wild state.

The desideratum of the florist is to produce the finest-shaped flowers, to approximate as closely as possible to the ideal standard of beauty in this flower that good florists have established, and to have the largest trusses or clusters that are to be obtained. In order to produce the last requirement, however, it is necessary to stimulate the plant by an uncommon richness of soil or compost, and as regards the ingredients of this compost, almost all florists differ from each other. Soils recommended by various cultivators for almost any particular florists' flower differ very much, but in none so greatly as in that recommended for the Auricula, insomuch that the young or inexperienced cultivator is either at a loss which to choose, or perhaps loses a considerable per centage of his stock before he is able to assert on what food they succeed best. As an old cultivator, I would never advise the admixture of so many ingredients as have been recommended by some growers; several of a very disagreeable and fantastic nature—blood and offal from a butcher's shambles, putrid yeast, and other things equally offensive as unnecessary, have each had their advocates, especially among old cultivators, It has begun to be seen, however, that the Auricula may be well grown without such things, and for my own plants I employ a simple mixture of the following character, in which they flourish and produce as fine flowers as any that I have had the pleasure to see, viz., one-third of fresh light loam and river sand in equal proportions, and two-thirds of thoroughly decayed and rotten cow-dung, so old as to have the appearance of black soil. These three ingredients, when well incorporated, are capable of growing the Auricula in robust health, and flowering it in constant perfection. All that is necessary is, to keep a stock of the ingredients on hand, to supply the demand for top-dressing and repotting.

With reference to the management of this flower, there is less difference among florists than as regards the nature of the compost in which it should be grown; all admit the advantage of imitating nature's proceedings as closely as possible: the frame or pit takes place of the covering of snow as a protection from cutting wind and intense frost, and the free drainage of the mountain heights is secured by the use of a sufficiency of broken crocks and charcoal. In the depth of winter, at such an altitude as they grow, little or no moisture falls upon them, being almost always in the state of crystalline snow, and from this circumstance the cultivator may take a hint to see that his lights are well glazed and secure at the laps, to prevent the ill effects which, as might be inferred, result from drip or excess of moisture. My pots are always placed on a thick stratum of ashes, spread over the bottom of the frame, which secures them from damp, as well as offers a pretty good obstruction to the progress of snails and slugs of every description. Under this protecting management, the plants will be preserved in health during the rudest blasts and storms of winter. With the first opening bud of spring they may be exposed to sun and air, unless the temperature be very low, or winds boisterous. The Auricula begins to make rapid progress as March comes in, and this is the best time to top-dress them, and indeed the only time during which they can receive much benefit from the operation. The way it is done is this: the soil must be removed as much as possible from the surface, consistently with the safety of the upper fibres of the roots (which will not bear much interference), and its place supplied with fresh compost of the description already pointed out. After this, water may be given once or twice a week with safety and advantage to the plants; it is best to give sufficient to moisten the soil thoroughly, rather than to pursue the plan of "little and often." The vigour of the plants will evince the propriety of the treatment, and as the season draws nigh for reaping the reward of the florist's pains, every precaution should be taken to protect the expanding blossoms from strong winds, which otherwise would speedily deteriorate their beauty, and spoil their rich velvety corollas; the power of the sun's rays must also be subdued by a screen, or their brilliance fades, and the "paste" will crack.

In full bloom, their rich and varied tints afford a pure source of gratification, on which I never gaze without being reminded of the beneficence which has strewn our path with such floral gems.

> "God might have made enough—enough
> For every want of ours;
> For luxury, medicine, and toil,
> And yet have made no flowers."

When the flowering season is past, and the Auricula ceases to grow with vigour, choose a convenient situation with a northern aspect, to protect the plants from the direct rays of the sun, and where they may be sheltered as well from heavy rain. It is a critical time, and the plants which have been confined in the frame are liable to sustain injury if exposed to such influences too suddenly; many plants are annually destroyed from this cause alone. If a stage, covered with lights overhead, and having a northern aspect, can be appropriated to this plant, it leaves nothing to be desired in this respect; at all events, it is easy to secure a few lights by means of temporary framework, and so secure the stock from such untoward casualties.

Early in August offsets may be removed and potted in the same compost as the parent plants, and it is the best time for repotting such as require it. The offsets taken at this time are not so liable to exhaust themselves, the wounds caused by the operation heal over more rapidly, and the old plants bear it better. Repotting is quite unnecessary to be done every year. I believe every other year is sufficient, as the soil in the pot is not generally exhausted in a single season. Plants that have had offsets removed require care in potting, to see that the soil do not cover the wounds about the necks of the plants, or they will infallibly damp off. In the wet and cold months of the closing year, the Auricula must be kept dry; look to the glazing of the lights in time, and thus guard against drip; let the pots stand on a dry stratum, and when it is absolutely necessary to give water, administer it with an abstemious hand.

On a future occasion I shall offer a few descriptive remarks on the best show varieties, and for the present take my leave of your readers with the single observation that no flower is more worthy of the florist's care than the "Beare's Ear" of our ancestors—our Auricula.

ON PREPARING THE CHRYSANTHEMUM FOR EXHIBITION.

BY MR. JAMES SUTTON, BEXLEY.

CHRYSANTHEMUMS are so hardy, and capable of suffering so much ill usage with almost perfect impunity, that it would appear to be almost unnecessary to say how they should be managed. Notwithstanding this, however, the great difference between growing for the garden and for exhibitional purposes may serve as an apology for offering a few remarks on managing them for show.

The natural habit of the Chrysanthemum is bad and rather untidy, most of them growing tall, and too often naked. When the plant is designed for exhibition much care should be exerted to correct this, and present a handsome specimen. If the plants are to be shown in pots, and the object is to have bushy specimens with many blooms, take your struck cutting, or a healthy sucker early in spring, and cut off the top within two or three eyes of the ground; let it have plenty of pot-room, and put it in the cold pit, where it may be shaded. It will begin to push out, and where one shoot takes much lead of the others, take off the top. By the commencement of May set the plants out of doors in a shady situation, or where at least they may be screened from the mid-day sun. Here they will require watching, and must have moderate watering, the pots being frequently turned round, as well to help the appearance of the plants as to prevent their striking root through the pot. As the shoots push out again, continue to shorten them until the plants have formed nice bushes, or are furnished with as many branches as may be desired. By the end of September set the plants in a frame, so as to be secure from early frosts. Before doing this, however, turn the balls gently out of the pot, to see how they are accommodated for pot-room, as it is essential to good growth that they be not cramped in the least. Such as require it should be repotted in good time, so that they may not have to be shifted at a more advanced period, when the buds are much expanded. In blooming-time, if a little behind the season, they may be placed in the greenhouse, where they will be hastened. When coming into bloom, water with a little manure-water, made from a shovelful of decayed cow-dung to three or four pails of water; it should be supplied with due caution, however, and after every third or fourth common watering will be sufficient. Plants thus treated make handsome specimens, and are noble objects, although the flowers will not be so large as when fewer of them are allowed to remain on the plant.

To obtain larger blooms it is a good plan to strike the top cuttings of a plant in July, and grow them in small pots in the open air, shifting them as the roots require it; these will bloom earlier than the others. After having a shift and being well watered, place them in a frame in September, where they may remain a while, and afterwards be placed in the greenhouse, where they will have a little increase of temperature, and their blooms will be developed to a much superior size to those on bushy plants grown as before specified. Being made from late cuttings, the plants will be much more dwarf than they would otherwise have been; early cuttings especially, when not made of the extremities of the shoots, would tend to produce tall plants. The cuttings taken off in July may be grown either in small pots, and afterwards shifted from time to time, or transferred at once to six-inch pots, on the one-shift system; the advantage of using small pots to begin with is, that we have a means of checking any tendency to over-luxuriance by lengthening the intervals of the several shiftings. To produce the largest-sized blooms, there is no superior plan to that of growing the early cuttings or suckers as luxuriantly as possible, without regard to the height of the plants; and when the blooms exhibited are to be cut, the habit of the plant is a matter of no importance. The early-struck cuttings should be placed in thirty-two-sized pots in rich soil, as soon as they will bear removal, and when fit, shifted into a larger size; and if they should not bloom before they have filled these pots, water them with dilute liquid manure every two or three days. All blooms intended for show must be screened from the effects of frost, which may come on unexpectedly: a greenhouse or pit is therefore indispensable.

Of the large-flowering show varieties the following are some of the best:—*Alfred Salter*, delicate pink, incurved, large and fine. *Annie Salter*, clear golden yellow, large. *Beauty*, peach-blush, incurved. *Calypso*, lilac, edged with white, incurved. *Christophe Colomb*, reddish violet, large, incurved. *Defiance*, white, incurved. *Dupont de l'Eure*, orange and carmine, incurved; a fine show flower. *Elizabeth*, incurved, white; very fine. *Formosum*, pale sulphur, incurved. *Goliah*, very large, incurved, white; a fine show flower. *Hermine*, blush, tipped with purple, incurved; a perfect gem. *Jenny Lind*, sulphur, yellow centre, incurved. *King*, light peach, incurved, large and fine. *Le Prophète*, golden fawn; splendid show flower. *Madame Poggi*, chestnut-crimson; an old but fine show flower. *Mars*, light red; a large, incurved show variety. *Miss Kate*, delicate lilac, fine *Pio Nono*, Indian red, with golden yellow tips; a fine, incurved show flower. *Queen of England*, splendid blush, incurved. *Rabelais*, carmine and yellow, incurved; a fine show variety. *Racine*, gold and brown tips. early and fine. *Rosa mystica*, creamy rose, incurved, good. *Stellaris globosa*, deep carmine and white, incurved; fine show flower. ***Versailles Defiance***, bright rosy lilac, fine. ***Vesta***, incurved, ivory-white. ***Vulcan***, bright red-crimson; a very fine show flower.

Amongst the Anemone-flowered show flowers I can recommend the varieties named below. ***Diamant de Versailles***, pure white guard petals, with a rose centre. ***Fleur de Marie***, splendid snow-white. ***Gluck***, splendid golden yellow, large. ***Madame Gorderau***, fine sulphur. ***Madonna***, sulphur-yellow, with a deeper centre. *Marguerite d'Anjou*, fine nankeen. *Marguerite de York*, canary and dark yellow. ***Nancy de Sermet***, beautiful pure white; fine form ***Reine Marguerite*** (F.), large, fine yellow. ***Rose Marguerite***, bright rosy guard petals, with a light centre; very distinct.

From the above lists, which contain all the best in each class, the amateur will be able to select a very distinct and fine collection, and may compete at the autumn Chrysanthemum shows with every chance of success, if the remarks on their culture be followed up.

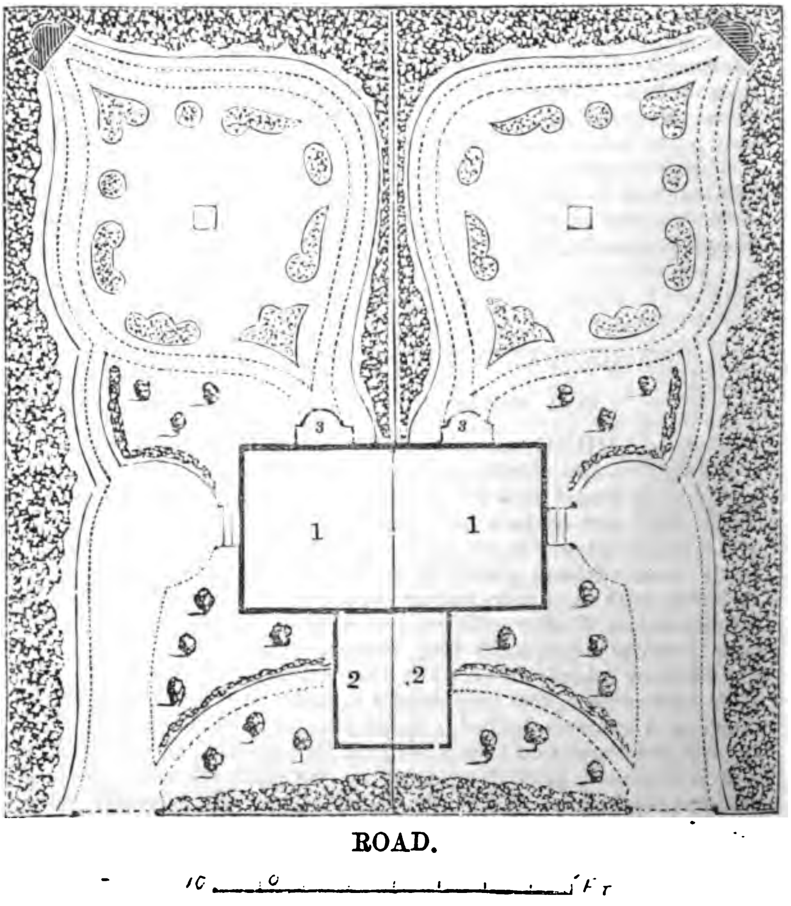
ON GARDENIA RADICANS AND FLORIDA.

BY A NOBLEMAN'S FLOWER GARDENER.

AMONG the most delicate and fragrant early flowers these Gardenias may be classed; for they are now forced forward in abundance to meet the demands of our markets and gardens, and cultivated to a great extent for cut flowers. Both the above species strike freely from cuttings placed in silver sand, under bell-glasses, if favoured with a gentle bottom heat; their after-management is equally simple, if, after sufficient root is made, they are potted off and transferred to a common hotbed, plunged to the rim, and kept growing till they actually flower; the principal thing to bear in mind in their cultivation is, that they delight in moist peat, and in nothing so much as a common hotbed. A few pots in a cucumber frame will do well, insomuch that they who grow for supplying Covent Garden find it the most profitable as well as the most effective; the heat afforded is just what the plants require, keeps off red spider, thrip, mealy bug, and other entomological pests, to which they are so liable in the stove. When the plants are large, they should be transferred to a moist stove or orchid-house, or they are in danger of receiving a check they do not get over without considerable care and trouble, and frequently not at all. If cuttings are taken off at the time when last year's shoots have made all their growth, they will root and flower before they are more than three inches high, and even in thumb-pots, although for specimens this would not be allowable. Few plants surpass them in delightful fragrance, and they yield an abundance of lovely blossoms at a time when they are very serviceable.

DESIGN FOR THE GROUNDS OF TWO SMALL VILLAS.

BY T. RUTGER, ESQ.



SMALL villa residences are occasionally attached in couplets. The accompanying design embraces rather more than half an acre. The garden fronts of the houses are intended to be entered through a plant-cabinet, or small conservatory. From the coach-entrances there is a walk leading to the domestic apartments of each house.

The houses are supposed to be elevated, and are entered through a porch with steps. In the corners of the shrubberies there is a small summer-house to each, and a site indicated on the lawn for a vase, or for some article of embellishment.

Reference. — Fig. 1 1, house; 2 2, kitchen department; 3 3, plant-cabinet, or conservatories.

SEASONABLE HINTS ON THE PELARGONIUM.

BY MR. JAMES CLARKE, NUTFIELD, NEAR REIGATE.

WHILE the display of bloom which the present season has afforded is fresh in the minds of cultivators, I avail myself of the occasion to submit a few seasonable hints to the readers of the *Cabinet*, with the full assurance of their utility, and the conviction that this favourite flower cannot be grown to so great advantage under any other system; in this opinion my experience fully bears me out.

At no other period is the future success of the cultivator so much at stake as from the present time to the close of the year. When the plants have been cut down, and as soon as they have pushed shoots to a sufficient length for them to endure the operation of disrooting, not a day should be lost in performing it, after which every encouragement should be given to assist their progress and growth before the close of the year. That this is most essential to the production of bloom no one will question, neither does it require a repetition of facts to establish what must be self-evident; for if left to form both their wood and flower in the ensuing year, neither is brought to perfection. Where such is the case, all possible means are employed to obtain growth, and thus the quantity, as well as quality, of the blooms becomes impaired, and are necessarily inferior to those plants that have had their growth promoted during the autumnal months.

While on this subject I may also refer to over-potting the Pelargonium, which I consider generally objectionable; its effects are distinctly shown, in most instances, by long shoots and a very flexible growth—a deformity open to the censure of all having any pretensions to floricultural skill. Frequent and judicious shifts—the beneficial exposure of every part of the plants to the influence of sun and air, watering, and careful attention in tying and shaping them, are the principal points to be attended to in their after-management. As they are coming into bloom, shading is an almost indispensable requisite, although, where the foregoing system is acted on, this will be found less necessary. The best time to flower the Pelargonium is from the middle of May to the close of the third week in June.

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EXHIBITION OF THE ROYAL BOTANIC SOCIETY, REGENT'S PARK.

THE last floral fête of the season took place on July 1, under rather unfavourable circumstances arising from the state of the weather, consequently, as might be expected, the number of visitors was not nearly so great as is generally the case. The display of plants was good, however, and the same may be said of the fruit. Collections of stove and greenhouse plants were in abundance and in good condition, comprising *Allamandas* in fine bloom, *Ixoras*, *Heaths*, *Dipladenias*, *Rondeletias*, *Pleromas*, *Epacrises*, etc., and an immense specimen from Mr. Green, gardener to Sir E. Antrobus, of *Meyenia erecta*, nearly six feet high, covered with its lovely blossoms, excited great interest. *Orchids* were contributed by the usual exhibitors, the best being from Dr. Butler, of Woolwich, reflecting great credit on his intelligent gardener, Mr. Keel. Messrs. Veitch had also a fine group, in which we noticed two plants of *Saccolabium guttatum*, one with sixteen long spikes of its lovely blossoms. Plants with ornamental foliage were well represented by several exhibitors; the finest came from Mr. Parker, of Hornsey. Mr. Salter, of Hammersmith, showed an interesting group of hardy variegated plants, deservedly admired. *Cape Heaths* were very good, and *Fuchsias* also; Mr. Bray, gardener to Baron Goldsmid, showed a group, each plant clothed from top to bottom with flowers, and ranging from six to eight feet high. The collections of cut blooms of *Roses* were in great number, and highly admired: one variety only, *Lord Raglan*, need be specially noted here; its blooms were very fine and large, of a brilliant scarlet—indispensable in every good collection. *Ferns* were in excellent condition and in considerable numbers. The *Pelargoniums* were scarcely so good as at the previous exhibition, but comprised a few promising novelties. Among new plants Mr. Epps showed *Acer Negundo*, a variegated Maple; Messrs. Veitch, *Thujopsis dolabrata*, and the white *Ixora acuminata;* Mr. Matthews, of Clapham, had fine specimens of *Lilium excelsum*, with buff-coloured flowers; Mr. Smith, of Hornsey, a new white corolla *Fuchsia*, very pure, and of good form, named *Princess of Prussia;* Messrs. Jackson, of Kingston, two new Orchids, one an *Anguloa*, with creamy white blossoms. A few *Pinks*, *Pansies*, and *Balsams* were fine. Mr. Watson's new double purple *Petunias* were large and showy, as were some variegated-flowered varieties.

Following so nearly on the previous exhibitions, a more extended notice of the present is unnecessary.

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Grafting-wax.—Take four proportions by weight of pitch, an equal quantity of resin, two of bees' wax, one of hog's lard, and one of turpentine; melt and mix them well; spread it on brown paper, which, when cut into strips, can be easily applied.—*Nemo.*

ON ROSE-STOCKS, AND BUDDING.

BY MR. HENRY DYER.

IT may not be out of place perhaps at this season to offer a few remarks on the management of Rose-stocks in summer, together with a hint on budding them, more especially as early in this month is the best time for performing the operation.

The number of stocks collected every winter for budding on has now reached a prodigious amount, and the number of those who bud their own plants has also vastly multiplied. When we consider the enchanting grace and beauty of this favourite flower, and the ease with which varieties may be propagated by budding, we need not be surprised at such a result.

Autumn, and even through the winter as late as January, is the proper time to collect stocks; previous to planting, let them be trimmed, but not too closely, at the root, so as to leave but little of the old stump, cutting off all decayed parts. The stems are to be cut to the required height, a short distance above an eye, sloping a little from it, and then they are ready for planting in a rich soil. They will make an abundance of fibres, and during the ensuing summer produce a number of shoots on which to operate in budding. Although it is a very general practice to trim the stocks to the few branches required for budding on, and frequently to cut in these, it appears to me contrary to sound practice, and the principles of vegetable physiology; for where the branches are shortened and the lungs of the plant (the leaves) nearly if not entirely got rid of, the sap remains in the cells of the stock in a crude state, and the following spring it often happens that the buds fail or the stock dies off; especially is this the case when the more delicate kinds have been budded, as Tea, Bourbon, and China Roses. The vigorous kinds have a better chance of taking hold, though not so well as if the branches had been left unmolested. My practice is to leave the stocks to grow, and when budding to remove only such leaves, and other parts as happen to be in the way; on this plan it will be found the buds "take" more readily than by the old plan. The stocks need no further attention until the buds have united, when they require to be untied; the branches may be left entire to the commencement of the following March, when such as are unbudded should be cut in close to the stock or branch, and the budded ones shortened to about four inches from the bud. Where the stocks have been allowed to grow and elaborate sap, the effect is surprising, to see the luxuriant shoots made from the bud during the first season.

The proper time for budding depends, in a great measure, on the condition of the stock and buds: July and August are in general the fittest months. The Dog-rose, generally used for working on, may be budded at this time and through September; though in this case a great deal depends on the weather and the free growth of the stocks and buds. Those Roses that perfect their growth early, as Gallica, Provence, Moss, Damask, and Austrian, are best budded in August, while the stocks that are late, and those of luxuriant growth, as Manetti and Crimson Boursault, succeed better if worked in September, choosing warm weather, when they take readily; Perpetual, Noisette, Tea, Bourbon, and all the autumnal Roses of late growths, for which the Manetti Stock is so excellently adapted, may be worked during the latter month. When autumnal Roses of the classes just mentioned are intended to be budded as standards on the Dog-rose, they may be worked as early as July or August, and with considerable advantage.

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NOTES ON SEED AND SEEDLINGS.

BY AN OLD AMATEUR, MIDDLESEX.

THERE was a time when, with all the enthusiasm and jealousy of the old school, florists indulged in the dog-in-the-manger-like feeling that induced them to throw away or destroy any really good seed rather than sell it or give it away, so that others might have a chance of raising new varieties equal to their own. In my past experience I have known many whom nothing would induce to part with a single grain of seed that was at all likely to produce a good flower, yet it was not bad feeling that produced this exclusiveness. If Hortulanus were lucky in his Pink seed, and saved an ounce instead of a few pods, he could not find room to sow perhaps a twentieth part of it, nevertheless he had an excellent chance of producing a good novelty among the few that he could sow and grow; but if he let out his seed, he would be giving a rival, or a dozen rivals, an equal chance of beating him, therefore nothing would induce him to part with any portion of it. Put forty years to a man's life, and he thinks differently; for times have changed, and much of the selfishness and exclusiveness so prevalent at that time has vanished, and it is much easier to obtain good seed than formerly. In consequence of this, a marked improvement has taken place, and really good flowers are produced in an increasing ratio. The late Mr. Baron raised the character of the Hollyhock from a coarse, flimsy, and almost worthless flower to very near perfection; Mr. Hunt, of Wycombe, did the same with the Sweet William; Mr. Thompson, of Iver, was equally successful with the Pansy, and Mr. Glenny with the Balsam. Mr. Baron was one of the first liberal men who let his seed go among the florists, and every one who purchased it raised good flowers. Mr. Hunt presented his seed to a nurseryman, but from want of care the improvement stopped, and has not since been equalled. Nothing is easier than to lose high ground if we are careless. To take a case in point: a gentleman, with whom I am well acquainted, purchased six classes of Balsam seed, but, in ignorance of which were the proper flowers to save seed from, he saved all he could, even when the plants, which were many of them ill grown, had exhausted their strength and were bearing weakly on their lateral branches, which always seed freely; he saved even the pods from the semi-double blooms. Here, then, the character of the seed was destroyed; yet he advertised his seed as obtained from the stock of the party he had purchased it of, and even gave it away under the same high character, a proceeding not only damaging to the fame of the grower, but leading to disappointment and distrust. This arose entirely from ignorance of the proper principles of seed-saving. Paying a visit the last season to Mr. Glenny, who has raised the finest Balsams I ever saw, I found in his possession twelve hundred potted plants in fine condition, and furnished with magnificent blooms. From this stock, as I was since informed, that gentleman saved but four ounces of seed that he could depend on as first-rate, and two pounds that was of a more doubtful character, and which he refused to let out. It were much to be desired that growers generally would imitate the foregoing examples; then reliance could be placed on having something good, and we should be saved the vexation and, too frequently, disgust which arises when inferior flowers are so generally raised from seed supposed to be the best that is to be got; and, nevertheless, saved from weakly and worthless flowers, mixed perhaps with some that is really good, although, under such promiscuous saving, the proportion is very small indeed.

I would urge amateurs to save seed themselves, and always have a little to spare. Let them obtain a few of the very best plants they can get, whether Dahlias, Hollyhocks, Pansies, Pelargoniums, Antirrhinums, Sweet Williams, Pinks, Carnations, Picotees, Tulips, Auriculas, Polyanthuses, Calceolarias, Verbenas, Cinerarias, Petunias, or any other flower they delight in, or that they would be famed for; grow them together, but away from all other inferior plants of the same family, and save the seed. It may be they obtain but a few grains (for the higher the breed, the less are the plants inclined to perfect their seeds), and raise novelties for themselves. When they have done all they can, and have made use of the best means, there will always be plenty of inferior character among the progeny, and indeed worse than the parent plants; the amateur may proceed, however, with a well-grounded hope that he will speedily obtain a few worth keeping. On the other hand, if seed be saved from the best plants, and there be inferior ones in the neighbourhood, his hopes will be disappointed: so much more influential is a common thing than a good one, that it will often spoil the whole. It is a very common practice for those who grow quantities of anything, to go over the stock, and mark the best to save seed from separately. They might as well save it from the whole, however; and such persons wonder at their produce being so inferior. A double blue Convolvulus has recently been introduced from Germany; and of this I obtained seed, and sowed a quantity for curiosity; it happened that out of three dozen plants I obtained but five double-flowered ones, and those showing single blooms I pulled up as soon as they showed themselves, leaving the double to seed by themselves. Perhaps the produce from these will come more true to their character; but there can be little doubt that the German seeds were saved from double flowers, merely marked for that purpose, and left to grow among the mass of single ones by which they were surrounded. The invariable rule should be to save seed as long as you please from first-rate flowers removed from the influence of inferior ones; for if there be a space that bees or flies can thrust their trunk into, or introduce a leg so as to reach the pistillum or point of the seed-vessel, you will not fail to have plenty, indeed a great majority, of worthless flowers among the produce. Some flowers may be profitably fertilized by ourselves, simply applying the pollen or dust from the anthers of one flower to the pistillum of another, before it has had a chance of being impregnated by others; but if we select flowers of good properties and different colours, and grow them together, the insects will often do the work better than we can. If any one be ambitious to improve an annual, and is therefore obliged to begin by sowing seed, let him pull up any plant that is no better than ordinary, as soon as it shows flower, to distinguish its character; where there is a visible improvement let it stand, and continue to destroy the rest. When this rule is followed for a few seasons, the result will certainly be most gratifying.

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NOTES ON HARDY EVERGREENS.

BY CLERICUS.

(*Continued from page* 150.)

PINUS LARICIO, Corsican Pine.—A very valuable timber-tree, and a noble ornament for large grounds. It is remarkable for its large spreading roots, which often creep above the surface of the soil; it attains a height of a hundred or a hundred and thirty feet, and is of rapid growth, reaching maturity in about seventy years. The leaves are much longer on young trees than on old ones; being in one case about four inches, and in the other about half that length, twisted, and of a dark, intense green. The cones are egg-shaped, sometimes slightly curved, four inches long, Sienna brown; frequently two or three together, borne horizontally. Its wood is ry resinous, and the bark sometimes peels away. From Corsica, ily, Spain, Calabria, and Greece.

P. pumilio, Mountain Pine.—At a great elevation this forms a low spreading bush, and even in other situations it rarely attains more than from twenty-five to forty feet. The leaves are from one to two inches long, stiff, curved, and often twisted; cones an inch and a half long, blunt; branches slender, the lower ones creeping, and sometimes rooting in the ground. It inhabits Switzerland and the central parts of Europe.

P. resinosa, Resinous Pine.—The clear red colour of the bark of this species has given it the common name of Red Pine, and in North America the immense forests of this tree have a grand effect. It grows from seventy to eighty feet high, and averages, when full grown, two feet in diameter of trunk. The leaves are six inches long, collected in bunches or tufts at the ends of the branches, differing in this particular from the Corsican Pine, to which it has in other points some resemblance; cones two inches long, upright, sometimes singly and occasionally two or three together. Its wood is much esteemed.

P. uncinata, var. *humilis*, Mhugo Pine.—Inhabits the mountainous districts of south-western Europe. It is a very dwarf species, averaging only six or seven feet, forming a much-branched, low tree, and composing almost impassable thickets in its native localities. The leaves are placed very close, from one to one inch and a half long, slightly curved; cones small, roundish, scales destitute of hooks. This variety is suitable for grounds of limited extent.

P. cembroides, Cembrian Stone Pine.—Highly ornamental, and well deserving cultivation in limited grounds, as its growth rarely exceeds twenty feet; its slender branches are produced in whorls, the leaves rather more than an inch long, light green, and covering the branches closely; cones from two to three inches long, somewhat ovate and conical; bark nearly smooth. It inhabits mountains in California, growing at an elevation of 10,000 feet, and is therefore perfectly hardy with us.

P. Fremontiana, Fremont's Stone Pine.—Like the preceding, this is a dwarf-growing kind, from California, reaching about the same height when full grown; the trunk from eight to ten inches in diameter. The leaves vary from one to three inches in length, of a bright shining green, more or less curved; cones two inches and a half long, ovate, glossy brown. The seeds are eaten by the Indians, and have a pleasant flavour of almonds. Fremont's Stone Pine is found on the sides of the Great Snowy Chain, in California, extending over a length of three hundred miles. Very ornamental.

P. Pinea, Italian Stone Pine.—A tree of slow growth, but of very peculiar appearance, contrasting well with others. When full grown it forms a flat spreading head, and bears but few side branches. The leaves are dense, of a deep green, the young ones whitish, from seven to eight inches long, and the bark reddish brown; cones ovate or roundish, nearly six inches long, and arrive at maturity the third year. Its seeds are white, of an agreeable taste, and nearly an inch long. It is a native of the shores of the Mediterranean, and grows from fifty to sixty feet high.

Araucaria excelsa, Norfolk Island Pine.—This striking tree is now well known, and although not perfectly hardy, as a little protection in winter is required, especially for young plants, it is indispensable in every choice collection of trees and shrubs. In Norfolk Island it is a very lofty tree, reaching two hundred and thirty feet in height, with a perfectly straight trunk, which is free from branches up to about one hundred feet, and bears a pyramidal head. Young trees are very beautiful objects, with horizontal spreading branches in whorls, closely set with foliage. As the trees increase in age, the branches become pendulous. The leaves are about half an inch long, of a light green; the cones from five to six inches in diameter, almost globular, of a light brown colour.

Cunninghamia Sinensis, Chinese Cunninghamia.—This species will stand our winters in a sheltered situation, and there forms a handsome middle-sized tree, with branches in whorls, the upper ones ascending, and the lower horizontal. The leaves are stiff and sharp pointed, about one inch and a half long; the cones are small, about the size of a walnut, round, and drooping. It inhabits the southern provinces of China, and is also cultivated in Japan.

No. II.—The Cypress Tribe.

Thuja orientalis, Chinese Arbor Vitæ.—A well-known handsome shrub, very suitable for forming hedges, being of a compact upright growth. In its native countries, China, Japan, and the islands of Niphon and Sikok, where it is found in rocky situations on the mountains, it forms a large tree.

T. pendula, Weeping Arbor Vitæ.—A very elegant plant, indigenous to Mount Halkan, in Japan, and is extensively grown there as well as in China for its very graceful and ornamental habit. It is perfectly hardy, and forms a small tree, from ten to twelve feet high.

T. cuneata, Chili Arbor Vitæ.—A very beautiful hardy species, of rapid growth, forming a tall tree in some situations in the cool valleys of the Andes of Southern Chili. It somewhat resembles an upright Cypress in growth; foliage a shining green.

FLORA OF THE INDIAN ARCHIPELAGO.

THERE is scarcely any part of the globe more richly adorned with floral gems than the islands of this group. The most conspicuous are those of Borneo, Sumatra, and Java. Here Nature has strewn her richest gifts; there is no form of magnificence and beauty under which she does not present herself, from the quiet loveliness of the secluded valley, to the grandeur and sublimity of an alpine landscape. "You breathe," says an old author, "in the Eastern Archipelago an air impregnated with the odours of innumerable flowers of the greatest fragrance, of which there is a perpetual succession the year round, the sweet savour of which captivates the soul, and inspires the most delightful sensations. The inhabitants of these spots are passionately fond of flowers; there, females are never considered dressed unless decorated with a profusion of them, and when any beautiful thing is to be expressed, the name of some flower is made use of."

The prevailing colours of the floral productions in these islands are yellow and red, though other tints are frequently seen. Some of the most showy of the Indian flowers are produced on large trees, although great quantities grow on shrubs and humbler plants. Creepers and climbing plants are here found in great abundance; their perfume is generally oppressive and heavy when near, but when inhaled at a distance they are found to be of the sweetest odours.

The island of Borneo produces many gaudy and elegant flowers. One species of Rhododendron may well be termed gorgeous; it grows with its roots twining around the trunks of the forest-trees, and bears large heads of flowers of pale but rich yellow to a reddish salmon colour, which in the sun sparkles with the brilliancy of gold. There are several other species of this showy tribe—crimson, red, and mixtures of the two colours. The Clerodendron here forms a shrub ten to twelve feet high, bearing at the end of every branch a loose spike of rich scarlet-crimson flowers, projecting two feet above its foliage. The stems are red, while in the centre of every flower is a white spot, the whole forming a handsome pyramid. When this shrub has gone out of bloom there remain on every stem four-seeded berries, of a deep blue, which, contrasting with the crimson stalks, render the plant as gaudy and attractive as when in full bloom. There are also varieties of the Clerodendron with white and scarlet coloured flowers. The Bringa Kasihan (*Cælogyne*), or "Flowers of Mercy," are highly fragrant, tinted with delicate white and orange. There are many beautiful flowers which grow most abundantly on the banks of the Bornean rivers, amongst which is a very fragrant Bignonia. Of climbing plants, this island produces a great abundance, one of which, a Bauhinia, is totally new and undescribed; when in full bloom it bears luxuriant clusters of gaudy crimson flowers. The *Hoya imperialis* has been found loaded with bunches of its purple and ivory-coloured blossoms. Another of the same genus, named after the Earl of Auckland, is hung with bunches of a large size and rich hue.

In the woods many beautiful parasitical plants are seen. Captain Mundy mentions some of them, adorned with lovely blossoms, completely wrapping themselves in close, thick matted folds round the supporting trunk, which they continue to encircle until it perishes in the close embrace, and moulders into a heap of vegetable matter.

Several species of the curious Pitcher-plant (*Nepenthes*) inhabit these islands. The *N. Rafflesii* grows on the rocky islands in the neighbourhood of Singapore, and seldom exceeds five feet in height, while the species named after Sir William Hooker is found in the bottom of deep jungle-valleys in Borneo, climbing to the top of lofty trees. Some of the pitchers, at the extremities of the leaves, will hold a pint of water. Two species have been observed: one deep green above, and reddish peach colour beneath, and the other green, spotted and speckled with purplish red.

N. ampullacea is also found here; it is a climbing plant, the stems drop by degrees from the supporting trunk, and moulder on the ground, when they are covered in a short time with vegetable matter, which forms a coating of earth about them; from this spring numerous shoots, which in time become new plants, and the spot of ground is thus gradually covered with a carpet, as it were, of these curious formations, over which are scattered a number of the pitchers, and, as the leaves gradually develope, wither and disappear, when the plants begin to flourish luxuriantly and climb among the trees.

(*To be continued.*)

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NOTES ON NEW AND SELECT PLANTS.

PUYA VIRESCENS. Nat. Ord. *Bromeliaceæ.*—A plant of very little beauty, bearing spikes or scapes of greenish white flowers two feet high, in March. It is a native of some part (the exact locality unknown) of South America, probably Venezuela or New Granada, and requires stove treatment. The plant is of moderate size, the leaves pale green, Yucca-like, from one and a half to two feet long. (*Bot. Mag.*, 4991.)

92. RHODODENDRON VEITCHIANUM. Nat. Ord. *Ericaceæ.*—Our readers will have already become acquainted with this fine plant from the notices of it inserted in the accounts of the exhibitions at the Crystal Palace and Chiswick Gardens. It is a small or moderate-sized shrub, the branches covered with smooth, shining red or deep brown bark; the leaves obovate, from three to four inches long; the flowers are borne three or four together, very large, measuring five inches and upwards across the mouth of the corolla, which is pure white, with a stripe or tinge of green at the base of the upper lip; the margins are curled and crisped, much resembling *Azalea crispiflora* in this respect. Messrs. Veitch, after whom the species is named, introduced it from Moulmein. (*Bot. Mag.*, 4992.)

93. DENDROBIUM CREPIDATUM. Nat. Ord. *Orchideæ.*—A very beautiful Dendrobium from Bengal. The blossoms, which measure about an inch and a half in diameter, are creamy white, the petals and sepals tipped with pale rose, and the centre of the labellum widely blotched with golden yellow. Although resembling in some degree *D. cretaceum*, the flowers of this species are considerably larger, and the

petals and sepals broader, and more rounded at the apex. It is a desirable addition to this lovely tribe. (*Bot. Mag.*, 4993.)

94. Doronicum Bourgæi. Nat. Ord. *Compositæ.*—M. Bourgeau detected this highly ornamental greenhouse plant at Barranco del Angostura, in the Canary Islands, in 1855, whence seeds were forwarded to the Kew establishment, where plants have bloomed profusely. It is much like a Cineraria both in flower and habit, differing, however, in minute botanical peculiarities unnecessary here to mention. The flowers are light purple, with a deep crimson or maroon-coloured eye, borne in large corymbous heads. It grows from one and a half to three feet high. (*Bot. Mag.*, 4994.)

95. Forsythia suspensa. Nat. Ord. *Oleaceæ.*—An improvement on the well-known *F. viridissima*, the segments of the corolla being broader and larger, and of the same golden hue. This appears to be the original species on which the genus was founded, although named by Thunberg *Syringa suspensa.* It was introduced by M. Verkerk Pistorius into Holland as far back as 1833, but does not seem to have been brought into this country until recently. Notwithstanding its being obtained from Japan, it grows there only in a state of cultivation, and is, doubtless, indigenous to China. It forms a straggling much-branched shrub, of somewhat pendulous habit. When trained against a wall it has a handsome effect, producing its rich large flowers before the leaves make their appearance. (*Bot. Mag.*, 4995.)

96. Cirrhopetalum Cuminghii. Nat. Ord. *Orchideæ.*—An early spring-flowering Orchid, which originally bloomed in this country with Messrs. Loddige as far back as 1841. It owes its introduction from the Philippine Islands to Mr. Cuming, whose name it bears. Its flowers are arranged in a small depressed umbel, spreading in a semicircle, and are of a rich reddish purple colour. (*Bot. Mag.*, 4996.)

97. Bryonia laniosa. Nat. Ord. *Cucurbitaceæ.*—This plant, although possessing no very attractive flower, is, nevertheless, in leaf and fruit; the latter is of the size of a small cherry, perfectly spherical, banded and marbled with white on a bright green ground. It is half hardy, and has a pretty effect when trained on a trellis. It is a native of Ceylon, and therefore requires to be raised in a rather warm temperature early in the spring, without which precaution it will not ripen its fruit in this climate. It is a vigorous grower, and was cultivated at Paris, at the Museum of Natural History, in 1855. (*Flore des Serres*, 1202.)

98. Lilium sinicum. Nat. Ord. *Liliaceæ.*—Introduced in 1824 to the gardens of the Horticultural Society, but was afterwards lost. It has been reintroduced by Mr. Fortune, who forwarded it from China to Messrs. Standish and Noble, of Bagshot, where it has again flowered. A dwarf-growing species, not exceeding about a foot in height. The flowers, which are produced in an erect, loose raceme, are three inches across, of a rich orange-scarlet. It is a good acquisition to this numerous and beautiful family. (*Flore des Serres*, 1206.)

frequently, and give water in moderation; *Tree*, re-shift into larger pots, cut off all flower-buds and lateral shoots that appear till December, they will then have attained several feet in height, and may be allowed to flower. *Nicotiana*, sow seed towards the end of the month in pots of light, rich, finely sifted soil, just enough to cover them, and place in a hotbed. *Pentstemon speciosum*, this seeds freely, and ripens towards the close of the month. The seed should be sown in pots or pans, in a compost of loam and sand, as soon as gathered, for if kept till spring, the plants rarely come up till the following year. Place the pots in a cool frame, where they may remain through the winter. Those raised last year will now require shifting into larger pots, allowing plenty of air and water. *Roses*, see last month's directions.

CULTURAL DEPARTMENT IN THE GREENHOUSE.—*Azaleas*, and other plants of this class that have set their buds, may be removed out of doors to a sheltered situation. *Calceolarias*, repot and place in the shade. *Chrysanthemums*, procure a stock *now* of any desired; stop the leading shoots, if bushy specimens are wanted. *Ericas* and *Epacrises*, when out of flower cut them in judiciously, to make them bushy. *Pelargoniums*, the plants that were cut down last month, and are now broken sufficiently at the eyes, may have the soil shaken off, and be disrooted, after this they should be placed in a close frame, or gentle bottom heat, until again rooted to the sides of the pots, then give plenty of air, but shelter from heavy and sudden rains. Shift and stop cuttings that are well rooted. Seed may be sown as soon as ripened; cover slightly with soil, and when required, water with a very fine rose or brush; when sun is strong, shade.

IN THE STOVE.

GENERAL OPERATIONS.—*Air*, admit freely, unless the temperature out of doors be low at the end of the month. *Cuttings*, as soon as sufficiently rooted to bear removal, pot them off to get established before winter. *Decayed leaves*, clear away as fast as they appear. *Insects* are now abundant, keep them under by every available means. *Moisture*, afford daily, by watering the paths where Orchids and other succulents are grown. *Plants in baskets*, dip in water every few days; those in flower may have reduced temperature. *Temperature*, see that it is not too high; also look to the heating apparatus, to have it in good order. *Top dress* and *tie up* occasionally. *Water*, reduce in quantity as summer passes over; use the sponge freely to keep foliage clean.

CULTURAL DEPARTMENT.—*Achimenes*, when done blooming, lay the pots on their sides out of doors, where they may be preserved from wet and damp, to keep the bulbs in a quiescent state. *Dendrobiums*, when their new pseudo-bulbs are perfected, reduce the supply of water, and place them in a lower temperature; the same treatment may be pursued with *Epidendrums*. *Gesnerias* and *Gloxinias* may have the same treatment as *Achimenes*. *Ixoras*, last month's directions may still be carried out if neglected then. *Justicias*, *Clerodendrons*, and other rapid-growing plants, may have a shift. *Passifloras and other Climbers*, prune-in freely, and tie up.

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QUESTIONS, ANSWERS, AND REMARKS.

FRENCH PELARGONIUMS.—During my attendance at the recent Horticultural fêtes at the Crystal Palace and elsewhere, I was much struck with the appearance of that class termed "French, or Spotted" Pelargoniums, and would feel obliged to the Editor of the *Cabinet* if he would favour me with a descriptive list of a few of the best and most attractive varieties in present cultivation.—*Amicus*.

[Ernest Duval, lilac-purple, all the petals veined and blotched with maroon. Eugene Duval (Miellez), rosy purple, with a light centre and edging; showy. James Odier, violet-rose, with a white centre. Madame Corbay, bright rosy scarlet, with white centre; very striking. Madame Heine, upper petals deep maroon, edged with white; lower, white, with a veined spot of rich maroon. Madame James Odier, rosy scarlet shading to violet; extra fine. Madame de Lamoriciere, salmon flesh colour, petals equally blotched with crimson-maroon. Mousieur Droquet, carmine, striped and shaded with maroon, white centre. Monsieur de la Galissérie, rich orange, with a distinct maroon spot in each petal. Ne plus Ultra, bright deep crimson, with very dark veins and blush centre. Perugino, large, deep rose, with a maroon spot in each petal. Pescatorei, orange-red, with a tinge of salmon, each petal equally spotted with maroon, centre white. Princess Matilda, upper petals deep black, edged with white; lower, white, with maroon spots. Roi des Pourpres, dark purple, blotched and veined with chocolate. Triomphe de la Tour, deep rose, strongly veined with crimson. Verschaffeldtii, upper petals deep chestnut-crimson; lower, rosy flesh, with crimson spots and veins. The above selection comprises the most distinct and striking of this pretty class, which, although wanting in form, are very showy, and please by the brilliancy of their colouring, and beauty of their regular spots. Few plants are more ornamental for the conservatory.—ED.]

TEA ROSE, MRS. BOSANQUET.—I have a fine dwarf budded plant of this Rose which has not bloomed since the first season it was planted, now three years ago; its bloom was then very profuse. The plant seems in excellent health, and is very vigorous, with strong shoots, which have been pruned-in regularly in the month of November. It is in good strong and rich soil, well manured each season. If you, or any of your numerous correspondents, can inform me where I have erred, or what is the cause of the failure, I shall be much obliged.—*Julia.*

[We have no doubt it has been treated too kindly; the soil is too rich, which causes it to produce wood instead of flowers. If taken up early next year, about the beginning of March, and roots pruned (shortening the largest, but not interfering with the fibres), and replanted in a poorer loam, without manure of any kind, we doubt not but a profusion of bloom will follow.—ED.]

POMEGRANATES IN POTS.—Will you inform me how I am to treat these plants in order to make them bloom well in pots?—*J. M. L.*

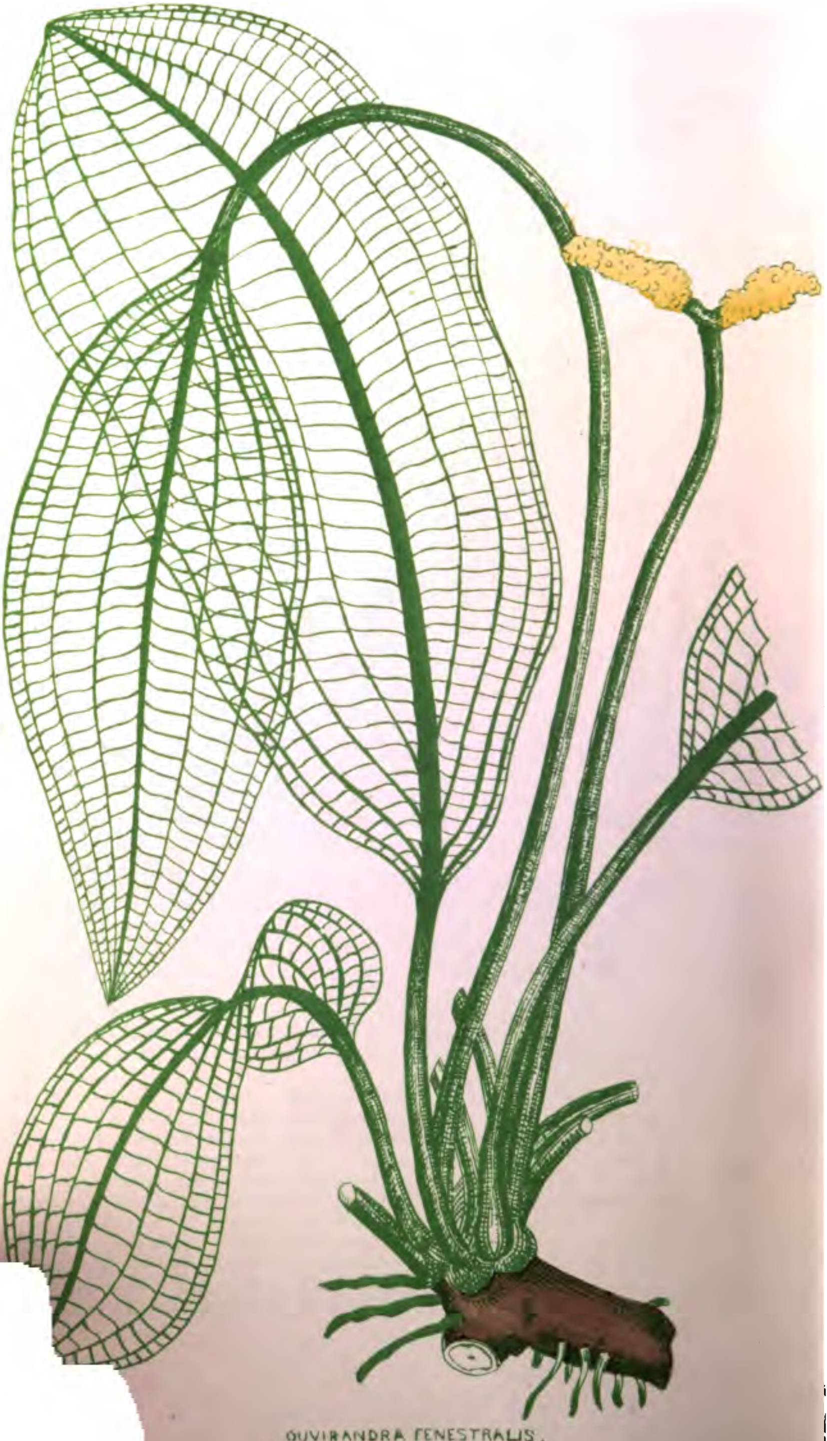
[They must not be allowed to grow too luxuriantly; for if stimulated to produce wood, no flowers can be expected. They require a dry, warm atmosphere; generally our climate will be found too damp for them to succeed well. They must have all the sun possible during summer, and especially the autumn months; allow them to rest during winter; push them forward in the greenhouse in early spring, and again expose them to the action of the sun in autumn. Do not water too liberally, and you will succeed.—ED.]

LUMINOUS PLANTS.—The phenomenon of phosphorescent dead wood is of very frequent occurrence in some parts of the humid mountainous provinces of India, and I am perfectly familiar with it. At Darjiling, in the Sikkim Himalaya, during the damp warm summer months (May to October), at elevations of 5000 to 8000 feet, it may be witnessed every night by walking a few yards in the forest—at least it was so in 1848 and 1849; and during my stay there billets of decayed wood were repeatedly sent me by residents, with inquiries as to the cause of their luminosity. It is no exaggeration to say that one does not need to remove from the fire-side to see this phenomenon, for if there is a log of partially decayed wood amongst the fire-wood, it is almost sure to glow with a pale phosphoric light, if the candles be removed and the fire low. A stack of fire-wood collected near my host's (Mr. Hodgson) cottage, at 7400 feet elevation, presented a beautiful spectacle for two months, and on passing it at night, I had always to quiet my pony, who strongly objeeted to it. The phenomenon invariably accompanies decay, and is common on Oak, Laurel (*Tetranthera*), Birch, and probably other timbers; it equally appears on cut wood and on stumps, but is most frequent on branches lying close to the ground in the wet forests. I have reason to believe that it spreads with great rapidity from old surfaces to fresh-cut ones. That it is a vital phenomenon, and due to the mycelium of a fungus, I do not in the least doubt, for I have observed it occasionally circumscribed by those black lines which are often seen to bound mycelia on dead wood, and to precede a more rapid decay. I have often tried, but always in vain, to coax these mycelia into developing some fungus, by placing them in damp rooms, etc. When camping in the mountains I have caused the natives to bring phosphorescent wood into my tent, for the pleasure of watching its soft undulating light, which appears to pale and glow with every motion of the atmosphere; but, except in this difference of intensity, it presents no change in appearance night after night. Alcohol, heat, and dryness soon dissipate it; electricity I never tried. It has no odour, and my dog, who had a fine sense of smell, paid no heed when it was laid under his nose. As far as my observations go, this phenomenon of light is confined to the lower orders of vegetable life, to the fungi alone, and is not dependent on irritability. I have never seen luminous flowers or roots, nor do I know of any authenticated instance, such, namely, as may not be explained by the presence of mycelium or of animal life. In the animal kingdom luminosity is confined, I believe, to the Invertebrata, and is especially common amongst the Radiata and Mollusca; it is also frequent in the Entomostracous Crustacea, and in various genera of most orders of insects. In all these, even in the Sertulariæ, I have invariably observed the light to be increased by irritation, in which respect the luminosity of animal life differs from that of the vegetable.—*J. D. H.* (*Gard. Chron.*)

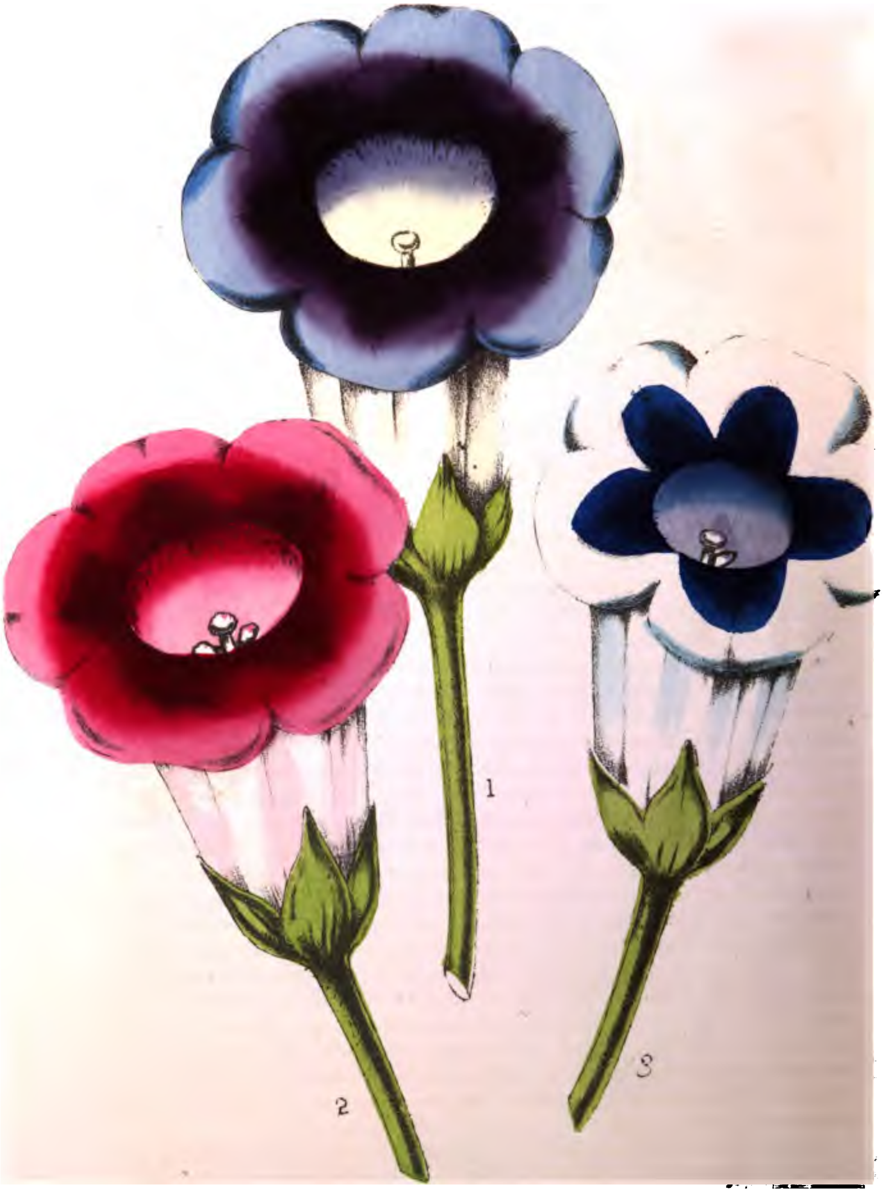
Cissus discolor.—I succeed in growing this well in equal parts of light turfy loam and peat, with a little leaf-soil and coarse gritty sand, to keep the compost porous. It must be well drained with large crocks, covering them over with rough turfy peat, as drainage made with small crocks soon becomes choked up. It is worse than useless for any plant after it has been removed from a three-inch pot. The Cissus requires a high temperature, and must therefore be placed in the hottest part of the stove or orchid-house, and shading must be particularly attended to on bright days. This latter is essentially requisite, in order to produce that intensity of colour which makes it so charming. Most plants require strong solar light to bring out their colours to perfection; but the one under consideration is an exception, which is readily accounted for by tracing the plant to its natural habitat, where the sun is scarcely able to dart his fiery rays through the dense mass of luxuriant vegetation by which it is surrounded, but whose burning heat, acting on the saturated moss-clad soil, causes a thick vapour to exhale, which is highly congenial to vegetable life, but far otherwise to the botanical rambler who may prolong his stay among these unhealthy shades. It is admirably adapted for trailing up a pillar, or on the end walls or divisions of the stove. If trained up the rafters the young shoots must be allowed to hang down, or the effect would be partially destroyed by the surface of the leaves turning to the roof instead of facing the observer's eye. It is also equally suitable for pot culture, and in this case any trellis may be used that taste may suggest; probably one of upright pillar-like form will be found to be as suitable for displaying its varied tints as any that may be devised. As autumn approaches, the supply of water must be gradually diminished, and the plant kept rather dry from November till February, allowing it only just sufficient water to keep the roots healthy. This partial rest will enable it to start into growth with renewed vigour in the following spring, when the former treatment may be resumed.—*S. P.*

Clianthus puniceus.—This is too often treated as if it were very tender; but, in common with most plants of New Zealand, it may be made to bear our climate most readily, if grown against a south wall, with the slight protection of a mat in winter. When grown side by side with the *Wistaria Sinensis*, they make really a splendid contrast, as I have seen in the garden of a friend of mine. Nothing can look better than these two plants for a wall.—*B. F. T., Truro.*

Autumnal Crocuses.—These bulbs grow freely in a rather dry, deep loamy soil, and may be regarded as hardy in our climate, if they are preserved from the injurious influence of damp in the soil; as their vegetative development takes place during our most inclement weather, it may be proper to give them a sheltered situation, such as the foot of a wall or building. Until they become much more abundant, however, they can hardly have much influence on out-door gardening. They are invaluable, nevertheless, as pot plants for the decoration of greenhouses and sitting rooms during the later autumnal months, when few flowers remain. In pot-culture they should have good-sized well-drained pots of sandy loam and leaf-mould, and should be grown in a cold frame, whence they may be removed while in blossom to the situations they are required to decorate, and after flowering should be returned to the frame, and slightly protected during severe weather. They are increased by the offsets from the old corms; and also in some cases by seeds, which may furnish the means of increasing the variety of these autumnal ornaments, a point to which greater attention deserves to be paid. Will no one take this interesting tribe in hand?—*Quoque.*



OUVIRANDRA FENESTRALIS.



GLOXINIAS.

The Floricultural Cabinet.

SEPTEMBER, 1857.

ILLUSTRATIONS.

GLOXINIA SPECIOSA, VAR. HYBRIDA ERECTA.

No. 1, MADAME PICOULINE. No. 2, FULGENS.
No. 3, HELEN OF ORLEANS.

THE erect-flowering Gloxinias are now universal favourites, and since the original or type of the class, *G. Fyfiana*, was raised, about twelve years ago, a marked improvement has taken place, which is still going on,—an instance among many others of the result of careful hybridization. It is a remarkable circumstance that the accidental variation from the normal structure or habit of the Gloxinia should have been perpetuated in the erect-flowered varieties, all having their rise from *Fyfiana*. As ornamental plants for the stove or greenhouse, and adapted alike for pot or basket culture, Gloxinias possess merits of a high order, not only arising from their beautiful flowers and foliage, combined with dwarf, compact habit, but from the ease with which they may be cultivated or propagated, and the length of time during which a succession may be kept in bloom. Any one possessed of a warm close pit may grow them very successfully in a mixture of loam, peat, and sand, the peat being broken up into lumps. Free drainage is essential, as they require an abundance of water when in a growing state. When the leaves begin to decay, in the autumn, the supply of water must be gradually diminished, and when they have died off, the pots containing the tubers may be set away on any dry shelf where they are secure from frost. In spring they may be repotted, and started in succession, to keep up a supply of bloom throughout the summer. If started in autumn they may be had in flower during winter and spring.

The three handsome varieties figured this month were raised by M. Jæger, gardener to the Grand Duke of Saxe Weimar, at Eisenach, a gentleman who has been very successful in raising many novelties, and who has devoted a large share of attention to this favourite flower.

In addition to the three kinds figured in our illustration the annexed descriptive list of a dozen choice erect-flowered varieties comprises some of the best at present in cultivation.

Alba Auriculata.—Pure white, with carmine-rose-coloured throat.

Dionysius.—Centre of the tube white, the upper part surrounded with pale rose, mottled with carmine spots, and deepening as the colour extends half-way up the segments of the corolla.

Donna Colonna.—Centre of the tube pure white, surrounded at the mouth with a circle of rosy violet, extending half-way up the segments of the corolla.

Eloisa.—Centre of the tube pale blush, passing into purple near the mouth, segments of the corolla separated by a narrow sinus or opening, blotched with deep crimson, nearly covering the entire petal.

Gentiana.—Tube and segments fine purple or plum colour.

Imperatrice Eugenie.—White tube and segments, with bright purple-crimson throat.

Ipomœa.—Tube pure white, segments violet-blue.

Marie Paulowna.—Tube and throat white, segments porcelain-blue.

Princess Royal.—Corolla large, tube white, or pale sulphur, segments delicate lilac-blue, with a white spot at the base of each, surrounded with a ring of darker lilac.

Roi des Belges.—Throat white, shading into pale crimson and rich plum-purple in the segments, which are blotched about half-way up; a very distinct, neat flower.

Tarragona.—Throat pale, carmine, deepening half-way up the segments.

Waterwitch.—Tube white, with a zone of delicate rose surrounding the mouth.

A DESCRIPTIVE LIST OF ONE HUNDRED OF THE BEST ROSES.

BY ONE WHO HAS ATTENDED THE EXHIBITIONS.

AS the time for planting Roses is drawing near, it may prove serviceable to many of the amateur readers of the *Cabinet* to give a descriptive list of some of the best Roses in cultivation, as an assistance to intending purchasers.

In making out the following list, I have been guided by my notes, taken during the course of my attendance at the late exhibitions, corrected by one of the most extensive growers of this favourite flower, and, to make them more select, I have confined the list to one hundred varieties; as such, it may perhaps prove useful, and is at your service.

MOSS.

The great beauty of this class fully repays the extra care and attention the high cultivation which they require demands. Luxembourg and Princesse Adelaide are robust growers, and ought not to be over-pruned, but thinned out, and their shoots tied down to induce a more abundant bloom; the dwarfer ones may be pruned closer. If desired, they may be grown as pillar Roses. *Baronne de Wassener*, rosy red, very double, large, and flowers in clusters. *De Mets*, large and double, fine bright rose. *Lainii*, rosy crimson, with a tinge of purple, large, fine, and double; a vigorous grower. *Luxembourg*, crimson-red, tinged with purple, large and double; very vigorous. *Princesse Adelaide*, light rose, in clusters; a splendid flower. *Unique de Provence*, superb white, blooming in large clusters; very double.

PROVENCE, OR CABBAGE.

This class contains some varieties that are remarkable for their fine globular flowers and delicious scent. The soil in which they are grown can scarcely be too rich, and they should be pruned in closely *Adrienne de Cardoville*, deep rose, large and full; a distinct flower *Cristata*, clear rose, with lighter edges; the buds prettily crested *Reine de Provence*, pinky lilac, large and double; a strong grower.

GALLICA.

These Roses form very compact heads; their flowers are valued for their bright, high colours and extra form, and are all first-rate exhibition flowers; moderate pruning is best for them. *Boule de Nanteuil*, purplish crimson, the centre sometimes glowing crimson-red; large, distinct, and good. *Duchess of Buccleuch*, deep rose, with blush edges, large and very double, fine. *Latour d'Auvergne*, rich carmine, sometimes inclining to purple, with a brilliant centre; large and fine. *Œillet parfait*, ground pure white, broadly striped with rose and crimson, very double; a superb flower. *Shakespeare* (or *Kean*), velvety crimson, shaded with purple, fiery centre; large and very full. *William Tell*, rosy blush, with paler edges; a superb, large, and full Rose, of vigorous growth.

HYBRID PROVENCE.

This section being mostly moderate growers, require pretty close pruning. They are of delicate colouring, closely allied to the Provence and Gallica Roses. *Blanchefleur*, white, suffused with delicate rose; an abundant bloomer, large, and perfect form. *Comtesse de Ségur*, light flesh, delicate, full, and fine.

HYBRID CHINA.

In pruning, these Roses should be well thinned, and the flowering branches shortened but little. The strong growers make fine pillar or climbing plants. Most of these Roses are almost perfection itself in form and size. *Blairii*, No 2, rosy blush; very large and fine. *Brennus* (or *Brutus*), vivid carmine, superb, large and full; a vigorous grower. *General Jacqueminot*, purple-crimson; fine form, and very large. *Madame Plantier*, white, blooming in large clusters. *Magna Rosea*, fine light pink, very large.

HYBRID BOURBON.

The foregoing remarks on pruning Hybrid China Roses are equally applicable to this section. *Charles Duval*, rosy pink, excellent form and size. *Chénedolé*, brilliant crimson, extra large and double; a superb flower. *Comtesse Mole*, delicate rosy pink; fine. *Coupe d'Hébé*, fleshy pink; a noble flower. *Las Cases*, bright rose; an immense flower. *Paul Perras*, beautiful shaded Rose; large, full, and fine. *Paul Ricaut*, bright rosy crimson, globular, and full; a splendid flower.

ALBA.

This comprises a limited but beautiful section that require but ordinary cultivation. The dwarf growers may be pruned rather closely, and the more vigorous kinds not so much. *Félicité Parmentier*, rosy blush, with lighter edges; very double. *Madame le Gras*, pure white, centre tinged with cream colour; a beautiful large flower. *Sophie de Marcilly*, delicate blush, with rosy centre; fine when in bud.

DAMASK.

The damask section will bear a rather free pruning, are perfectly hardy, and form a very attractive class. *Madame Hardy*, snowy white; fine. *Madame Stoltz*, lemon-white; compact and superb. *Semiramis*, rose, with a creamy buff centre; very large and double.

HYBRID PERPETUAL.

Rich soil and rather close pruning are necessary. They are excellent pot Roses, and the strong growers make fine plants for pillars. The long period during which they continue to bloom, from early in June to the beginning of November, is alone a great recommendation, without respect to their brilliant colours. *Alexandrine Bachmetoff*, bright rosy carmine; large and full. *Auguste Mie*, light rose; a beautiful, large, globular flower. *Augustine Mouchelet*, rosy crimson, with a deeper centre; blooms in clusters, and fine size. *Bacchus*,, crimson-scarlet, free; an improvement on *Géant des Batailles*. *Baronne Hallez*, crimson-red; large and fine. *Baronne Prevost*, rosy blush, large and extra full; a very fine Rose. *Caroline de Sansal*, clear blush, beautifully cupped; large and fine. *Colonel de Rougemont*, deep rosy pink. *Comte de Nanteuil*, deep rose, with shaded edges; fine form. *Duchesse d'Orleans*, lilac blush; very large. *Duchess of Sutherland*, light glossy rose; a magnificent flower. *Empereur Napoleon*, deep crimson, shaded. *Gloire de Rosamene*, bright carmine; large and showy, semi-double. *Géant des Batailles*, scarlet-crimson; double, and very fine. *General Jacqueminot*, scarlet-crimson; very large. *Impératrice des Français*, flesh colour, whitish centre; a free late-blooming variety. *Lion des Combats*, reddish violet, sometimes shaded with scarlet; splendid. *Lord Raglan*, deep velvety crimson, edges rather tinged with violet; new and fine. *Madame Désire Giraud*, lush white, striped with carmine; large and distinct. *Madame Domage*, light rosy crimson; fine. *Madame Laffay*, crimson; beautiful. *Madame de Manoel*, light shaded pink. *Madame Masson*, superb haded crimson. *Madame Place*, rose; fine shape. *Madame Vidot*, lush, tinged with salmon; a finely cupped flower. *Mrs. Rivers*, light flesh; good habit and form. *Pauline Lansezeur*, bright crimson, changing to violet. *Prince Leon*, brilliant crimson; very double, new and fine. *Queen*, bright rose; large. *Queen Victoria*, white, shaded with pale pink; large and full. *Reine des Fleurs*, rosy pink; a perfect flower. *Souvenir de Leveson Gower*, crimson-red, changing to ruby; very fine. *Triomphe de Paris*, rich deep crimson; one of the finest of the section. *William Griffiths*, lilac-rose, compact. *William Jesse*, crimson, tinged with lilac; very fine.

PERPETUAL MOSS.

Similar treatment to the foregoing suits these autumnal moss Roses also. *Alfred de Dalmas*, rose, with lighter edges; blooms in clusters. *Madame Edouard Ory*, light rosy carmine; full.

BOURBON.

These are a very free and hardy class, generally blooming in autumn. The vigorous-growing kinds make beautiful pillar or climbing Roses. *Acidale*, blush white; large. *Aurore de Guide*, deep crimson; superb. *Comte de Robinski*, deep scarlet-crimson; large, full, and a beautiful flower. *La Quintine*, bright crimson, changing to velvety maroon; new and fine. *Madame Nerard*, silvery pink, with a deeper centre; superb. *Paul Joseph*, deep velvety crimson; large and fine. *Queen*, delicate creamy salmon; free bloomer. *Souvenir de la Malmaison*, clear flesh colour; a magnificent flower.

CHINA.

Adapted for planting in beds or borders, as well as for small pots. *Eugenie Beauharnois*, lilac-lake colour; a beautiful flower. *Madame Bureau*, fine pure white. *Miellez*, white, with a lemon tinge; excellent for pots. *Mrs. Bosanquet*, delicate pale flesh; flowers in clusters, large and beautiful.

TEA.

Tea Roses are rather tender, requiring a protection of fern or other branches in winter, and free drainage; they are unequalled for forcing. *Adam*, blush pink, with salmon centre; very large, and sweet scented. *Bougère*, bronzy rose; very large. *Comte de Paris*, creamy rose; large and perfect. *Devoniensis*, lemon-white; very large and fine. *Elise Sauvage*, pale yellow or straw colour, with buff centre; very fine. *Gloire de Dijon*, buff-yellow, shaded with salmon, very large; one of the finest Roses. *Madame Willermorz*, very light nankeen, with salmon centre. *Narcisse*, pale yellow; beautiful. *Niphetos*, lemon-white, sometimes pure white; very large and beautiful. *Safrano*, apricot colour when in bud, changing to nankeen; a splendid flower. *Souvenir d'un Ami*, shaded rosy salmon. *Vicomtesse de Cazes*, yellow, with bronzy centre; large and double.

NOISETTE.

Noisettes bloom in summer and autumn, many bearing immense clusters. The true Noisettes are perfectly hardy. The strong-growing kinds are also well adapted for climbers. *Jaune Desprez,* bronzy buff; large. *Lamarque,* lemon-yellow; large and superb. *Miss Glegg,* pure white, with a tinge of blush in the centre; dwarf habit, good. *Solfaterre,* large, bright sulphur-yellow.

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PLANTS SUITABLE FOR SUSPENDING IN BASKETS IN THE GREENHOUSE AND CONSERVATORY.

BY A NOBLEMAN'S FLOWER GARDENER.

ONE of the chief attractions of a greenhouse or conservatory consists in viewing a number of handsome trailing plants, growing in baskets and other neat-looking receptacles, suspended from the roof and hanging gracefully down. Indeed, there are many plants which cannot be seen to so great advantage in any other situation, and in some places where climbers cannot conveniently be trained, a few pretty pots or baskets, judiciously introduced, will lend a charm to the house which it would otherwise be destitute of. In the cooler temperature of the greenhouse or conservatory we may avail ourselves of a great range of subjects, far more numerous indeed than in the stove; but while describing suitable plants, I have in the following list confined myself to such as are easily managed and produce the best effect.

Aotus gracillimus is an excellent subject, bearing long branches, drooping down on all sides, and covered, when in flower, with elegant little yellow and orange pea-shaped blossoms. It may be increased and grown like Heaths in sandy loam and peat. *Calampelis scaber* (formerly *Eccremocarpus*) grows well and blossoms freely for a long time; bright orange. *Campanula fragilis,* suitable for small baskets; blossoms clear blue; branches long and slender; grows well in leaf-mould, peat, and loam, and readily increases by division. *Cereus;* of this genus there are several species suitable for basket culture, and in such a position they not only do well, but are very handsome when in flower; the only thing necessary to be remarked in their treatment is that they should be kept almost without moisture throughout the winter. *Cobœa scandens;* few plants are more showy than this, when bearing its purple Foxglove-like flowers, and we generally find it occupying such situations as we are now treating of, however few other plants there may be. It requires a rich soil, and should have a rather large-sized basket, with plenty of room to droop. Seed sown in a hotbed in March affords an easy method of obtaining stock for the purpose of filling baskets; prick out the young plants while in the seed-leaf, and keep repotting until large enough, but take care to stop them in frequently, to obtain plenty of lateral branches. *Dillwynia sessiliflora*, a New Holland plant, bearing very numerous drooping branches and small orange flowers; suitable for small-sized baskets, where it is a pretty object when in blossom; flourishes in peat, mixed with a little loam and silver sand. *Disandra prostrata*, a plant of a naturally drooping habit, bearing numerous, pretty, yellow star-like flowers. It is easily propagated by division of the root, and grows in a rather rich soil. *Epiphyllums;* like the *Cereuses*, there are many plants of this genus of the Cactus tribe that may be made to do well in such situations, and have a gorgeous appearance when in bloom. Their treatment has nothing peculiar, except the withholding of water in winter, and a liberal supply in summer, with a rather rich soil, rendered open by a mixture of broken crocks and some lime rubbish, to ensure a free drainage. Some of the best are, *E. Ackermanni*, flowers scarlet; *E. aurantiacum*, orange-red; *E. Bridgesii*, scarlet, shaded with bright purple, a very fine species; *E. Jenkinsonii*, bright scarlet, leaves large; *E. splendens*, light scarlet, very abundant bloomer; *E. Russellianum*, light purple; *E. truncatum*, pink; and *E. truncatum*, var. *violaceum*, a splendid species, bearing rather large, rich, violet-purple flowers. *Fuchsias;* there are many of pendent habit that may be grown in baskets, and few things look better, as any one who has seen the splendid plants suspended at the Crystal Palace and elsewhere can bear witness. *Geranium;* the Ivy-leafed variety is another plant well adapted for this purpose, and when mixed with other things, the rich green of its leaves has a happy effect, as well as its pale pink flowers. *Hardenbergia monophylla* is a rather straggling plant, but with judicious treatment looks well, and bears its pretty spikes of blue flowers in abundance. Peat, loam, and sand suit it well. *Heliotropium;* several varieties are excellent for small-sized baskets. *Hibbertia grossulariæfolia*, with leaves resembling those of the Gooseberry, coloured on the under side, and bright yellow flowers; makes a capital plant for suspending, as it not only has a good effect, but continues in bloom for a long time, which is no small recommendation. Loam and sandy peat grow it well, and cuttings strike freely under a bell-glass in sand. *Kennedya;* of this genus there are several plants that may be made use of, all beautiful, bearing neat showy flowers, of varying tints of red and orange. Sandy-peat soil is most suitable, and stock may be increased either by seed or cuttings. *Lantana miniata, crocea, Sellowii*, and several others, are nice things for baskets, and look well when mixed with Lobelias and Heliotropes. *Lobelia erinus* and such like procumbent varieties are elegant, either by themselves, or as a mixture with other plants. *Lophospermum scandens* is another of the best subjects, used extensively for furnishing the baskets in the Crystal Palace. Propagated by seed sown in a hotbed in March; pot off when large enough, and continue shifting until required for the baskets; cuttings taken off at midsummer will strike in sandy loam, in a frame shaded from the sun. Old plants generally become naked near the base of the stem; it is best, therefore, to renew them as soon as they become at all unsightly. *Lotus Jacobæus;* a pretty little plant for small baskets or mixtures, contrasting well by its rich velvety brown flowers with the other plants. The soil should be rather rich, and light; seeds and cuttings afford a ready means of increase. *Lysimachia nummularia,* although a hardy, native plant, answers basket purposes, and should be grown out of doors in pots, and introduced into the house while in flower; it is very pretty, bearing a profusion of pendent stems and yellow star-like blossoms. *Lycopodium;* several of these ornamental "mosses," all of the easiest culture, are valuable as affording a green undergrowth to Fuchsias and plants with rather naked stems; others hang down a considerable distance from the pot, and their light, airy appearance has a charming effect. They serve also to keep the soil cool and moist, when planted with other things. *Maurandyas;* several species answer well, and may be treated like Lophospermums. *Mesembryanthemums;* there are a number of species well adapted for basket culture, requiring similar treatment to the Cactus tribe. The following are among the best:—*M. aurantium,* orange; *M. blandum,* white; *M. coccineum,* scarlet; *M. decumbens,* pale red; *M. inclaudens,* purplish pink; *M. micans,* scarlet; *M. speciosum,* scarlet; and *M. violaceum,* violet. *Mimulus moschatus,* when grown in baskets, is a charming plant. *Nemophila insignis* and others are excellent subjects. *Nierembergia calycina,* flowers freely and early in the season; it requires rich soil and liberal water in summer, but should be kept rather dry in winter. *Petunias* look well, if not allowed to become too long. *Rose Vicomtesse de Cazes* does well, and makes a very desirable plant, if previously trained downwards in pots. *Saxifraga sarmentosa,* a very common but pretty plant, frequently seen in cottage windows. Its flowers are pink, and foliage large, marked with white, and purplish underneath. Readily increased by taking off the young plants that are produced at the joints of the stems. *Sollya heterophylla* does well with a little management, and is really a charming thing; heath-mould, or peat and loam, is proper compost for it, and it may be increased by seed; cuttings are rather difficult to strike without bottom heat. The pretty blue bell-shaped blossoms are very elegant. *Torenia Asiatica* is a beautiful plant for this purpose, more on account of its handsome purple and white flowers, as its habit is rather loose. It should be transferred to the stove when it has done flowering in the greenhouse. *Tropæolums;* many of this fine genus are handsome basket plants, especially *Lobbianus,* and the numerous hybrid varieties raised from it; they require, however, annual renewal. *Verbenas,* such as *venosa* and others of that class, look well.

In large conservatories, where the plants have abundant room to hang down, and plenty of light, some of the more rampant-growing plants in considerable-sized baskets look remarkably well, as *Plumbago Capensis*, *Passifloras*, and *Clematises*.

I must now conclude this rather extended list, although there are a number of very good plants that may be made use of for basket culture. Much effect is gained by a judicious mixture and arrangement of the plants as regards *habit and colour;* small baskets, containing the more compact and small-flowered plants, alternating with larger ones having a mixture, look well, and relieve the heavy appearance which they might otherwise have. Those who have baskets to fill ought by all means to pay a visit to the Crystal Palace, and see "how they manage these things there."

REMARKS ON POPULAR FLOWERS AND OLD GARDEN FAVOURITES.

BY MR. EDWARD SHEPPARD.

No. I.—The Rosemary.

"There's Rosemary for you, that's for remembrance; I pray you, love, remember."—*Hamlet.*

IF we consult the pages of those old worthies of the spade, Gerarde and Parkinson, as well as the writings of other old "cullers of simples" and gardening "apothecaries" of two hundred years back and farther, we shall be told that "Rosemarie" "comforteth the brayne and strengtheneth the hearte of man;" moreover, from these considerations we shall learn that it "helpeth the vnderstanding and memorie." I do not know whether this supposed influence on the faculties of the mind led to its being held an emblem of fidelity in love, and of remembrance, but such was the case, and to this virtue of the herb Shakespeare apparently refers in the lines spoken by Ophelia, quoted at the head of this article.

Drayton, in his "Pastorals," has preserved a similar reference to this emblem, where he says—

"He from his lass him lavender hath sent,
Showing her love, and doth requital crave;
Him Rosemary his sweetheart, whose intent
Is that he her in remembrance have."

Beaumont and Fletcher, and, if I mistake not, Wharton and Spenser, have similar allusions.

We find it was customary with our ancestors to wear sprigs of Rosemary at the joyful festivities of a bridal, and one says—

"Since wedding will come after wooing,
Get me some Rosemary, and let us be going."

Our forefathers would appear to have been somewhat fantastic in their choice of emblems, for we find Rosemary also a representative of sadness, and although worn at weddings, it was also an attendant at the funeral; sprigs of it were thrown into the grave, and plants placed in the mournful churchyard. The poet Gay alludes to this in his "Shepherd's Week," and from other sources it may be gathered that it was a common practice in his time to make this use of it. He says—

"To show their love, the neighbours far and near
Followed with wistful looks the damsel's bier;
Sprigg'd Rosemary the lads and lasses bore,
While dismally the parson walked before.
Upon her grave the Rosemary they threw,
The daisy, butter-cup, and endive blue."

In some of our country churchyards we may even now find this plant growing among the tombs.

In former times Rosemary was held in much greater estimation than it is at present, and it was a principal plant in the gardens of the great during the time of Elizabeth and James I. Shenstone says—

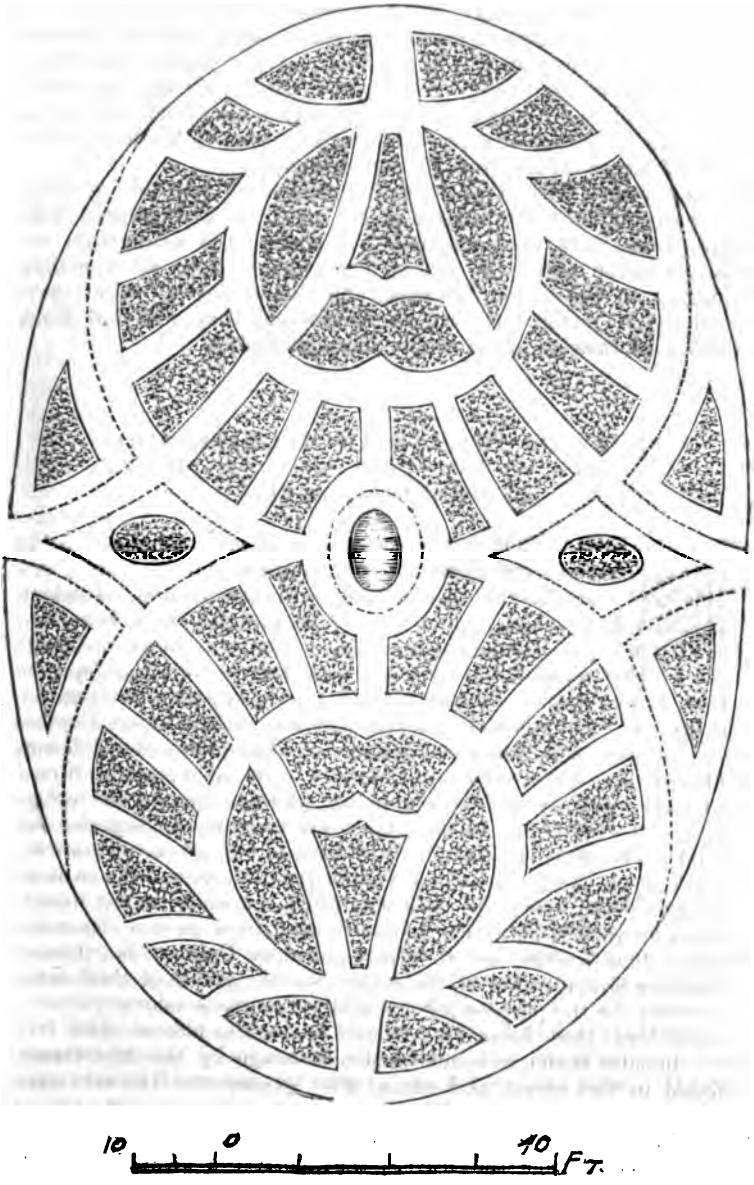
"Here trim Rosmarin, that whilom crowned
The daintiest garden of the proudest peer,
Ere driven from its envied site, it found
A sacred shelter for its branches here;
Oh wassel days! Oh customs meet and well!
Ere this was banished from its lofty sphere."

The wise and amiable Evelyn tells us frequently in his "Diary" of the beauty of his hedges of Rosemary, which at last were almost killed through excessive frost, as appears in his letter to the Royal Society, published in an early volume of their Transactions, wherein he details the damage done to his plants by the severe weather. This pretty, modest shrub was famous in the concoction of a liquor known as "Hungary-water," which the good dames who managed such things in the olden time (instead of, as now, killing time by knitting, netting, and crochet) extracted by spirits, and preserved as one of the rarest cordials.

Rosemary grows wild all over the South of Europe, and around the shores of the Mediterranean, being met with in Algeria and the Levant. In our climate it is not often injured, but bears our winters well in the border; in pots it is better to afford it the protection of a roof over its head in that inclement season. Slips or cuttings will root if taken off early in spring, but perhaps the best plan is to layer them, and after they have rooted sever the connection of the young plants with the parent gradually, cutting them half-way through first, by which means they are not so likely to receive a check. I have propagated a hundred nice little plants in a single season by this plan.

DESIGN FOR A ROSARIUM, OR HEATH GARDEN.

BY T. RUTGER, ESQ.



On my sending the accompanying design to the late Mr. Loudon, for his *Arboretum et Fruticetum,* he introduced it for an "Ericacetum," or Heath Garden; it may be seen at page 1184 in the second volume of that work, with his remarks (at page 1186). As it is equally applicable for a flower garden or a rosarium, I send it you for insertion in the *Cabinet,* should you think it worth a place in one of its pages. A proper situation for such a flower garden would be on a lawn, surrounded with a shrubbery, having in it recesses for garden seats, or arbours; and vases with other devices might be placed on the grass for embellishment.

Mr. Loudon, with other designs in connection with that of mine, enters largely into the subject in his article on Ericacetums, with regard to soil, site, etc., and does not confine the Ericacetum exclusively to the growth of *Ericas,* but extends it to other genera belonging to the order Ericaceæ, and should any of your correspondents be inclined to form an Ericacetum, they will find much valuable information in the article above alluded to.

FLORA OF THE INDIAN ARCHIPELAGO.

(*Continued from page* 218.)

HERBACEOUS plants are found in great numbers on the exposed and damp roads of Borneo, and in mossy, low places several species of *Anæctochilus* abound, of which the golden-veined variety is pre-eminently beautiful. Rajah Brooke has a garden before his house, in which there is a profusion of *Jasminum* and a number of *Camellia Japonica* shrubs, and he appears to avail himself of every opportunity to enrich his grounds with some of Nature's choicest productions. Captain Mundy also has a very good garden. Throughout the different islands of this extensive group, it appears to be an almost universal custom to cultivate certain plants for planting among the native tombs. In Java, the Samboja, or *Plumieria obtusa,* is grown for this purpose, and it is a plant well adapted to occupy such situations, its dark green foliage giving it a solemn appearance, and it has at all times an ancient look; the blossoms, which are white on the outside and yellow within, are the real mourning tints of the Javanese. Another flower, called by the natives Sulasi, an *Ocimum,* is gathered annually for the purpose of strewing over the graves of their venerated dead; these blossoms possess a highly aromatic odour.

Sumatra is rich in beautiful as well as singular plants. One tree found in this island, and named the Kanango by the inhabitants, grows to a large size, and bears a great profusion of flowers of a greenish yellow colour, which at a little distance can scarcely be distinguished from the leaves; they possess a pleasant fragrance, diffusing itself for a considerable distance around, especially in the evening, when the flowers open.

The Boongorio, Pandan, and Melattee are all handsome shrubs and fine flowers; the latter is frequently found planted by the native houses. Ladies of this island make use of the flowers of the Tanjong tree for head-dresses; they have a delicious scent, and are star-shaped, yellowish, or cream colour, borne in vast numbers among the dark rich foliage of the tree. There is a remarkable flower found only in this island, named the Sandool Mallam, which opens only after the sun is gone down, and another, the Jeering Landa, a pea-formed flower, whose seeds rattle loudly in the capsules. The Tab-kong-broo, or Monkey-cup flower, is rather scarce, indeed we have never seen it; but, from the description of the natives, we are led to consider it a species of Pitcher-plant. Many other remarkable plants are indigenous to the island of Sumatra, which we cannot allow ourselves space to particularise.

In one of the Din-ding islands (which though not properly forming any portion of the Indian Archipelago, yet are in the vicinity) Mr. Finlayson discovered an Epidendrum of giant growth; its flowering stems, six feet long, frequently bearing about a hundred blossoms, each between two to three inches across, and four inches long, of a rich yellow colour, speckled with brown, and giving off a very perceptible and rather pleasing odour. The island of Celebes luxuriates in an abundance of the floral creation. The hills are covered with flowering shrubs, while the valleys bloom with the most delicate creepers, and its broad, soft, meadow lands are lavishly ornamented with handsome plants; its forests are clothed with lovely parasites, orchids, and other orders of plants, and the rivers and lakes, which are numerous, are studded with Water Lilies and other gorgeous aquatics. Amidst the mountain ranges, where, secure in the repose of numerous little vales, the processes of agriculture are carried on, gardens are found decorated with trees and shrubs, hung with fragrant and beautiful blossoms.

In the recesses of those vast forests, which cover so extensive a portion of the islands of these seas, we occasionally pass under avenues of trees often rising to the height of a hundred feet before throwing out a single branch, adorned with every variety of parasite and creeper, which, uniting and clinging together, form garlands and vast festoons of various colours, which depend in beautiful wildness from the branches, or sway to and fro with the wind. The rocks, too, are not destitute of their plants—here beautiful Ferns, Lycopods, and Mosses "of all hues" blend into one another, and the green sward revels in an almost ceaseless change of pretty blossoms.

Balambangan, the island on which Mr. Dalrymple unsuccessfully endeavoured to found a colony, is a lovely spot, producing large and fine timber trees; one, with leaves like the bay tree, has flowers of great beauty, and highly odoriferous; various species of *Nepenthes*, or Pitcher-plants, are found in the morasses of the interior. The found that they have made a few rootlets, pot them off in equal proportions of rich fibrous loam chopped up, well-decomposed stable manure, and peat mixed with a little silver sand, using thumb-pots; the loam and peat should be chopped into small lumps, and never sifted, as it is rendered too close by that means. In the course of the following month, October, they may be potted off and placed in a pit where they will have a gentle heat, and in three weeks or a month more remove them to a warm greenhouse, placing them on a shelf near the glass. In January they may be shifted into a larger size, and should have an increase of temperature. Here they will grow rapidly.

When bushy plants are desired, it is best to encourage all the branches, and stop them into the second eye (except the leading shoot) until the proper height is attained. To form tall plants or standards, such as are now frequently exhibited, and look very handsome with their drooping branches reaching down nearly to the pot, the plan is to remove all the buds on the main stem to within four eyes of the top; when as tall as required the leader is cut in, and as the four eyes push on, stop them also at the second joints to make a handsome-branched head, although they will not have attained a fully developed appearance until the course of the second year. On coming into bloom, they may have a little weak manure-water occasionally, and will require attention to fumigation, syringing, and shade (especially the light-coloured sorts).

After bloom, the plants should be placed out of doors, to strengthen the wood for the following year; they should have a shady situation until the middle of October, when they will require shelter from frost and wet. They may be repotted at that time, if intended to flower early.

EPIMEDIUMS.

BY AMATOR FLORUM.

EARLY spring-flowering plants are valuable and, comparatively speaking, their number is rather limited, the great proportion consists of bulbs) which are themselves by no means to be despised); but it is an advantage to have a good selection to intermix with them, unless the garden or parterre be designed exclusively for that class of plants. The genus *Epimedium* is a very interesting one, comprising several ecies which flower at the above-mentioned season, and, if not hand- ne, yet pretty or even elegant little things. I am astonished do not see them grown to a much greater extent. In gardens nerally we find for the most part one eternal round of certain nts, whilst there are many that have met with little or no favour except in the gardens of more refined taste and greater pretensions than ordinary.

Epimediums are all dwarf-growing herbaceous plants, of neat appearance, well adapted for planting in beds or borders, and have pretty, lively, green foliage and interesting flowers. Their culture does not require anything remarkable, or present any point of difficulty; they are (at least the following) quite hardy, and one species is a native of our own country, namely, *E. alpinum*. They will grow well in any light garden soil—the addition of a little sandy peat being, however, beneficial; and may be readily propagated by division of the roots. *E. alpinum* grows about ten inches high, and bears straw-coloured and coppery red blossoms. *E. diphyllum* is very dwarf, not reaching much more than half the height of the last species, and bears white flowers; the leaves are in twos, which has given the name to the plant. *E. grandiflorum*, one of the best: the flowers white, tinged with delicate purple, above the usual size of this flower; it grows from eight to nine inches high. This and the preceding are natives of Japan. *E. Musschianum* is a rather tall plant, and bears small straw-coloured flowers. *E. pinnatum* is singularly pretty; its flowers clear yellow, with broader petals than the other kinds; it always reminds me of a cluster of golden stars; then, again, there is its very neat lively foliage to recommend it, which should make it a favourite with everybody; it grows about nine inches high, and comes from Persia. *E. violaceum* bears larger panicles of flowers than the preceding, and of a deeper tint of purple; it is another Japanese plant, which country, according to Siebold, possesses other and probably finer species than any of the above described. It is to be regretted that our opportunities of communicating with the interior of those islands are so limited as to deprive us, perhaps for a lengthened period, of many very handsome hardy plants.

A FEW HINTS ON WINDOW GARDENING.

BY MR. ROBERT SCOTT.

PERHAPS a few remarks on this subject may not be uninteresting, especially to the fair portion of the readers of the *Floricultural Cabinet*, for whom these hints are principally intended.

There are many who have not the convenience of a greenhouse, but are, nevertheless, equally fond of flowers, and spend considerable sums yearly in purchasing plants, and bestow a great deal of pains in attending to them. It is not to be denied, too, that after all their endeavours their plants often look sickly, and finally die. The blame is frequently laid at the door of the florist who supplied them, for not furnishing healthy plants, when in almost every instance the fault lies with the buyers. The plants, it is true, which come into the market, and purchased from their respective florists, have generally been regularly watered, potted in soil according to their different habits, and grown in pots according to their size. The heat, air, and light have all been arranged and regulated as the utmost skill and experience could suggest.

The transition from all this regularity to the tender mercies of the purchaser is soon felt. Drowning or starving, or neglecting altogether, is no uncommon fate. The plants are taken home, pots placed in pans or saucers deluged with water, and the water left in the saucers, or they are set in some conspicuous place, and left to their fate. In the first case the leaves turn yellow and drop off, the flowers fall, and in a very short time all that can be seen of them is their naked stems, with little tufts of green on the tops of the shoots, which a few days before were in perfection. In the latter case the plants die with all the leaves and bloom upon them. Nearly all the evils attending plants grown in windows are to be traced to these two causes. I must not omit to mention another reason of the sudden decline in the health of young and tender plants taken from the greenhouse of the florist to the private parlour, which is the great atmospheric change. In the greenhouse they have been all their previous lives accustomed to an atmosphere exceedingly damp; and when removed from thence to the parched-up atmosphere of a heated room, they feel almost like a "fish out of water." To prevent this shock to the health of the plants, they ought for a fortnight or more after they are brought home to be turned on their sides, so as to prevent saturating the soil in the pots, and thoroughly sprinkled or syringed with lukewarm water every other day.

I will now attempt to lay down a few general rules, which, if properly attended to, will do away with nearly all the complaints under this head.

1st. Never to water but when the plants are actually in want of it; that is easily known by feeling the soil with the finger. While it is moist no water is needed. When it feels dry, then water, which will not be found to be necessary oftener than three times a week in autumn and winter, and once a day in spring and summer, giving it copiously every time, and allowing it to run away entirely from the plant, so that the pots may never stand in it. The water used should be either rain or river water. If necessarily from the pump or spring, it should be allowed to stand in the air for a day or two before using.

2nd. To give plenty of air at every possible opportunity, *when the weather is mild*, either by having the window up, or by removing the plants outside. If, in warm weather, this is done under a burning sun, the pots will have to be shaded, as the sun upon the sides of the pots would prove injurious to the young roots, and would greatly injure the plants; if in bloom and exposed to the sun, the flowers would soon fade and drop.

3rd. To keep the rooms where the plants are at as uniform a temperature as possible, and the plants themselves as near the window as convenient, except in severe weather, when they are better near the middle of the room during the night.

4th. To examine them occasionally, to see if the pots are full of roots. When this is the case, if the plants are thought worth it, shift them into pots of a larger size, potting in good soil, or if not shifted, more care must be used in supplying water, as they require a larger quantity when in this state. In summer, water frequently over the foliage, but not unless they also need it at the root as well.

These may be adopted as very general rules, though more absolutely necessary to some plants than others, but will be found beneficial to all.

There is a good deal to be considered in buying plants, in making the proper choice; for, however gratifying it may be to have those which look the best in full bloom, it is most satisfactory to have those which last the longest in perfection, especially those which have a succession of bloom, and *whose foliage is interesting when the bloom is gone.* This rule may be deviated from in behalf of Tulips, Hyacinths, Crocuses, and other bulbs, which are valuable when little else is in flower; they will also bloom in the darkest streets of our cities. These should be purchased either in the beginning of *November*, when the roots are dry for planting, or in pots, when they are beginning to grow; for if delayed till they are in bloom, nine-tenths of their value is lost, because they are interesting in every stage of their growth, from the first formation of the leaves to the perfection of the flowers. Every day of development has its charm, and therefore they ought to be possessed from the first. All these require a plentiful supply of water when in a growing state; and if kept cool after showing flower their season of blooming is prolonged.

REMARKS ON WISTARIA SINENSIS.

BY AN OLD SUBSCRIBER.

THE most magnificent specimen of this splendid climber I ever saw was trained upon the walls in the garden of the Horticultural Society, and occupied a space three hundred and seventy-five feet in length. When seen in full flower it was exquisitely beautiful, and few could look at it without wishing to have in their possession an ornament so exceedingly graceful.

Judging from the comparative unfrequency of its occurring in small gardens, it would appear not to be known that it is increased so readily as to be purchasable in most nurseries for a small sum, that it is perfectly hardy, and that it may be cultivated with the greatest ease, as well as in a considerable variety of ways. In stating these plain facts therefore, and referring to the plant itself as an evidence of its desirableness, I shall just glance at the several modes in which it may be advantageously treated.

As a greenhouse or conservatory climber, its attractions are sufficiently familiar and recognised, although, considering its extreme beauty and fragrance, and capacity of blooming several times in a season, besides flourishing in almost any aspect, and being by no means particular as to where it is planted, we should expect to find it in every greenhouse and conservatory throughout the country. In the character of a tall shrub, however, or a pole plant, for placing in beds or borders of conservatories, or as a covering to any of the pillars which support the roof, or even pruned into a state of dwarfness, and kept in a pot, or made to trail on rustic-work in the centre or back of a greenhouse, it is almost entirely unknown. To adapt it for any of these forms or positions, scarcely any treatment is required beyond a due attention to pruning; but it is absolutely necessary that this pruning be rigid, and followed up with the greatest strictness.

The natural habit of the plant being to produce very long and comparatively weak shoots, it, of course, commences to form these from the very earliest periods of its growth. Indeed, as soon as a layered branch has become a plant, by throwing out roots from that part which is plunged in the ground, and which has been partially cut through to facilitate the process, it will begin to develope those tenuous branches which are peculiar to the species; and where a bushy specimen is required, the pruning must be immediately started. Nor will it be at all prudent to cease this close pruning until the plant has been reared into the desired form, when it will also have acquired that tendency to bear short-blooming spurs, instead of stout branches, which will render the subsequent prunings light and trifling.

By this kind of routine therefore—taking care to keep the shoots cut back very closely, at least every year, and, in the first stages, twice or thrice each season—good shrubby or pillar plants may readily be obtained for the conservatory. Nor is it to be questioned that both the novelty and beauty of such objects would greatly contribute to the adornment of appropriate plant structures. But independently of the suitableness of the *Wistaria* for attaching to the pillars of a conservatory, and for being so confined by pruning as to cover them alone, without extending over any other portion of the building, it possesses an equally striking adaptation for affixing to poles whether of wood or iron.

And here I cannot but digress a little, to express my wonder that, in addition to those fine climbers which are in well-kept establishments made to depend so naturally from the roof of the house, instead of being retained to that trim, restricted form which was once so universal, the interesting open-ground practice of training climbers to poles is not more freely introduced. A pillar of climbing Roses, for example, supported by a pole, and standing out amidst the varied shrubs and trees of the conservatory, would be a most delightful object; and there is scarcely a climber of any description that might not be similarly managed; for, when once they have been brought, by pruning, into a duly compact form, with a tendency to produce *early lateral* shoots, these last will, if left almost untouched, soon fling themselves out around the stem in every direction, and gradually take that drooping and waving character which renders these objects so exceedingly graceful. The *Wistaria* is an excellent plant for this purpose, as experience has fully proved. By efficient pruning it will acquire, when at the height of ten or twelve feet, such a number of lateral branches, about a foot long, that after it has reached this state it will bear only blooming spurs; or, if it should happen to throw out a few of its long slender shoots, these will only serve to increase its beauty during the summer, and be pruned away in winter.

Treated as a dwarf shrub, and cultivated in a pot, it is, moreover, an extremely manageable plant, and makes a very agreeable object for the show-house, as well as for its actual interest, because the fragrance of its flowers can be better enjoyed. As in the cases before spoken of pruning is the means by which it is to be brought into this dwarf condition, and since it grows in most common soil, the compost supplied to it in a pot should be of the simplest nature, such as ordinary garden earth, while the pot itself need not be over-large. In alluding to the *Wistaria* as a pot plant, I must not omit to mention its capabilities *for forcing* under such circumstances. Under the stimulus of a little heat it developes itself finely, as most cultivators well know; and when its attractions are duly considered, it will I think be frequently, ere long, subjected to the treatment indicated. As a plant for forcing under any circumstances, it is a real acquisition to the rather limited number of such plants, and I shall be pleased if this hint should bring it into more general notice. Its recommendations are great freedom in the production of its flowers, great beauty, and an exquisite fragrance.

When grown out of doors as a a wall-plant, and trained over the face of a house or other edifice, the circumstance of its blooming before the leaves appear, though not in itself an interesting one, is a thing which might properly exercise the attention and inquiry of the culturist, in order to associate it with some other plant which would supply the lacking verdure. Perhaps the Ivy, being the most verdant of all plants with a climbing habit, might be very appropriately blended with the *Wistaria* in clothing a wall or a portion of a building. From the spreading and rampant nature of the Ivy, it would necessarily require a great deal of thinning and pruning, to prevent it from over-running the *Wistaria*, and smothering it; but this could be easily prevented, and if only half a dozen branches of bloom were here and there visible amidst the dark and glossy foliage of the Ivy, the effect would be most charming. But perhaps the *Cytisus laburnum* is more appropriate than the Ivy for the purpose; it blooms nearly at the same time, has an allied character, and possessing a greater profusion of fine foliage, might be happily mingled with the *Wistaria*. There is no difficulty in training the Laburnum against a wall; and by intermingling the branches of the two plants, their similar racemes of blue and yellow blossoms would create a peculiar and pleasing effect.

In treating the *Wistaria* as an open-ground plant, it has hitherto been chiefly employed for walls or against houses; and its singular adaptation for decorating arbours, bowers, etc., seems to have been quite overlooked. It is exceedingly well fitted for covering those trellised arches of wood or iron which are sometimes placed over the walks in flower gardens and pleasure grounds, as nothing could be more delightful than a walk beneath its lovely blossoms. Those open-roofed pavilions or canopies, too, which are occasionally made of rustic wood, and put up in similar places, afford an equally good position for this charming plant.

What so appropriate in the way of a climber for arbours, or the retired erections for rest and cool enjoyment, so common in some gardens, as the *Wistaria?* To look through its noble racemes of bloom, fringing the edge of the roof, or surrounding the pillars along the front, would constitute the perfection of a foreground to a scene either of rural beauty or of enriched and elaborate cultivation.

The *Wistaria* is quite as hardy as the Laburnum. I have spoken of it fully as it deserves, and hope enough has been said to increase its cultivation, and to give it that diversity so essential to the production and maintenance of interest.

LEAVES AND ROOTS, THEIR FUNCTIONS AND STRUCTURE.

BY CLERICUS.

TO the practical and scientific cultivator, a knowledge of the organs of plants, their uses and functions, must not only be highly interesting, but most important. When we look at a plant, no matter how minute and delicate, or how gigantic and magnificent its proportions, we behold a thing endowed with life, in which are various organs necessary to the sustentation and production of its several parts. Let us for the present consider the structure and functions of those organs which more immediately call for observation, *i. e.*, the leaves and roots, as it is in these that the most important changes take place, by means of which the produce of the plant is perfected, and upon which the gardener must bestow his attention, that he may reap his due reward.

The functions of the leaves are intricate, and not easily understood. They are composed of numerous vessels, reticulated and interwoven one with another; of cellular tissue, which fills up the intervening spaces; of a membranous covering, which on the upper surface allows of *transpiration*, that in plants may be compared to the insensible perspiration of the surface, and the humidity exhaled from the lungs of animals, and on the under surface *stomata* or reservoirs for the reception of certain gases which are contained in the atmosphere. Here, then, we shall find a most important part of the vegetable economy taking place; here the sap of the plant is elaborated into the proper juices, the absolute article which that plant is to yield. Hence we can understand why the vigour of a plant depends upon the healthy green state and luxuriance of its leaves; and hence we can understand, also, why a plant having its leaves destroyed or eaten off as soon as they are unfolded cannot be expected to yield fruit the following season.

Let us enter farther into the structure of the leaves. It must be plain that if such important ends are to be gained in the leaves, we must expect an organization of a complex order. Yet the subject admits of elucidation; and a few observations may divest it of much of its complexity. It is not unlikely that the sap in the leaf may be compared to the capillary system in animals, and that while some of the ascending vessels terminate in the returning vessels, yet that much of the juices are transferred from one to the other by imbibition. I have said that the leaf is composed of numerous vessels, interwoven through each other. Hence you will bear in mind that there are two sets of vessels here intermixed; the one containing the sap which has ascended from the roots, the other those which are to convey away that sap after it has been elaborated into the proper juice of the plant. It is in the leaves that the product of the plant is formed, that the ascending sap is elaborated or assimilated into the proper juice of the plant, and this is effected by the combined action of light, the solar ray, and the atmosphere—affording a beautiful example of the wonderful and most effectual works of nature, a chemical laboratory in the minutest leaf, exceeding in beauty and design the most elaborate and ingenious of the works of art. Thus, to form our compound in the leaves, we derive the water and inorganic constituents of plants from the soil, the carbon and nitrogen from the atmosphere.

The carbonic acid of the atmosphere is supposed to amount to from the 1000 to 2000 part of its bulk; the atmosphere being composed of four parts of nitrogen and one part of oxygen, having the small portion of carbonic acid gas already stated—carbonic acid gas, as the reader is no doubt aware, being a compound of one part of carbon to two parts of oxygen. Now the *stomata*, or pores of the leaf, being open, inhale or receive the carbonic acid of the atmosphere; and as it is a peculiar property of the solar ray, acting upon green vegetable matter, to decompose carbonic acid gas, this chemical decomposition is effected in the *stomata*. The carbon permeates the sides of the vessels, is taken into, and combines with the juices already there, while the oxygen is liberated in a free state. Now, carbon is the *absolute necessary* ingredient required for the growth and substance of plants. It is that, in fact, which forms the *lignin*, or greatest portion of the wood, which, when burnt and divested of its extraneous matter, is carbon in its solid state. But we are now speaking of carbon in its gaseous form, which, however, is never formed, and cannot be realized pure, or in a free state, but always joined with some other gas or substance; thus, while floating in the atmosphere, it is in the form of carbonic acid gas. You are aware that this gas is most noxious and detrimental to animal life, and but for this wise provision of nature, would accumulate in such quantities as to depopulate the world. But the Great Ruler of the universe has ordained that this deleterious compound should be the very food and substance of every tree of the forest and blade of grass which clothes the fields. In many of the natural processes of this life, and in decomposition after death, this gas is generated. When we breathe we inhale an atmosphere of oxygen and nitrogen, with a very small proportion, as already stated, of carbonic acid gas; but we expire on air loaded with it. The act of combustion is to generate carbonic acid gas. Fermentation and decomposition, or putrefaction, all generate this noxious gas. Nay, the generating of this gas exists in the very act whether of germination, vegetation, combustion, fermentation, or putrefaction. If, then, this gas, so destructive to the animal economy, is generated in such quantities, that if some means were not at hand to again resolve it into its elements it would render the globe uninhabitable, it is gratifying to know that those means are at hand, in every leaf which is exposed to the surrounding atmosphere. Light and sunshine are the two great influences which act on vegetable matter, in restoring to a proper state a deteriorated atmosphere; the former having the peculiar faculty of giving the green colour to vegetable matter, and the latter, by its influence on green vegetable matter, in decomposing carbonic acid gas, the carbon being retained, and the oxygen set free. You are, of course, aware that oxygen is the grand supporter of animal life; without its aid and application, animal life would quickly become extinct. It is the supporter of combustion, and its presence is required in the germination of seeds and the vegetation of plants.

The leaves, then, are the organs of assimilation. In them the sap, having in solution the inorganic constituents of the plant derived from the soil, and deriving the carbon, which has been retained in the *stomata*, from the atmosphere, as also its nitrogen, elaborated now into the proper juices of the plant, returns through the descending vessels, on the inner side of the bark, to the root.

On the subject of carbon being derived from the atmosphere Professor Liebig says—"It is not denied that manure exercises an influence upon the development of plants; but it may be affirmed, with positive certainty, that it neither serves for the production of carbon, nor has any influence upon it, because we find that the quantity of carbon produced by *manured* lands is not greater than that yielded by lands which are *not* manured. The discussion as to the manner in which manure acts has nothing to do with the present question, which is, the *origin of carbon*. The carbon must be derived from other sources; and as the soil does not yield it, it can only be extracted from the atmosphere."

Relative to the nitrogen of plants, Professor Liebig states, "Plants, and consequently animals, must therefore derive their nitrogen from the atmosphere." And again he says, "Nitrogen is found in lichens which grow on basaltic rocks. Our fields produce more of it than we have given them as manure; and it exists in all kinds of soils and minerals which were never in contact with organic substances. The nitrogen in these cases could only have been extracted from the atmosphere." "No conclusion can, then, have a better foundation than this, that it is the ammonia of the atmosphere which furnishes nitrogen to plants."

I have already said that the *stomata*, or pores of the leaves, as it were, *inhale* the carbonic acid gas of the atmosphere, where it undergoes decomposition, retaining the carbon, and, as it were, *exhaling* the oxygen. This, by the older physiologists, was compared to the breathing of animals. Hence the leaves were termed the lungs of plants, the organs of breathing, or of respiration.

I shall say a few words on the functions and structure of the roots in an early number of the *Floricultural Cabinet*, as I fear I should be trespassing too much on your valuable space at present.

(*To be continued.*)

RECENT IMPROVEMENTS IN HORTICULTURAL APPARATUS, IMPLEMENTS, AND MANUFACTURES.

THE Horticultural Society of London deserve the thanks of the gardening public for their praiseworthy efforts to bring together specimens of all improvements and new inventions connected in any way with our science, at their exhibitions. The result of the gathering at the late Chiswick show was certainly very satisfactory and will probably lead to a more extensive display in future. Inventors and manufacturers will find it conducive to their interests to exhibit a new tool or specimen of any manufacture used in horticultural operations at these annual ga thering of the gardening public, and the gardener will derive sound instruction as well as a knowledge of those improvements calculated to assist him in his labours. Believing it will be interesting as well as useful to our subscribers, we shall, from time to time, notice such of these inventions as appear to be most valuable, for which purpose we have made notes from the collections brought together at the Horticultural Exhibitions and the Crystal Palace, as well as from specimens forwarded to us by the inventors.

Messrs. Gidney and Son, manufacturers of horticultural tools and implements, East Dereham, Norfolk, have brought out many useful articles, of which we shall have occasion to speak more at length hereafter, for the present we shall notice a few. Their improved Prussian hoes are extremely useful, and capable of being used with great effect. They are made with both single and double edges, giving a clean cut, and leave the ground remarkably level after it has been hoed; an expert hand will get through considerably more work with these tools than with those of the old form. We understand these hoes have received silver medals at various exhibitions. Gidney's improved Norfolk hoe is recommended for heavy work, and possesses the advantage of cleaning itself, as the mould cannot adhere to and clog about the neck, as in the old form of "eyed hoe."

Single Edge.

Double Edge.

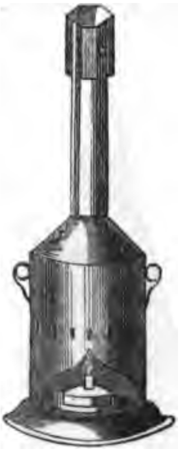
Improved Norfolk Hoe.

Two other hoes are worthy of notice, namely, the horizontal hoe and the improved drill hoe; the former has the blade set at the same angle as the Prussian hoes, is not liable to clog, and cuts up weeds without destroying the evenness of the ground; the latter implement supplies a want that has been long felt by gardeners—a tool that will make a good drill, of any required depth, and angular to the bottom, in order to ensure a perfectly straight line of plants. This the implement alluded to performs most satisfactorily.

Horizontal Hoe.

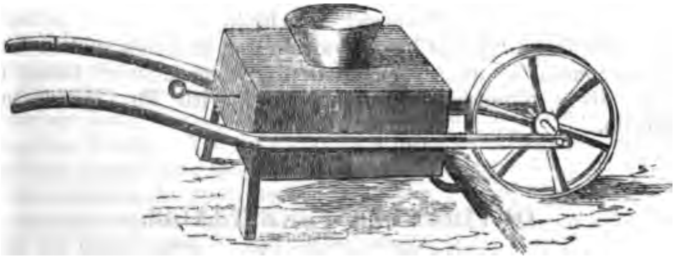
Improved Drill Hoe.

The self-acting fumigator of Messrs. Gidney is a portable article for use in conservatories, greenhouses, pits, and frames, and is really a useful invention, as by its means the unpleasantness of contact with smoke is avoided. It merely requires to be lighted and set in the greenhouse, when it gives off the fumes of tobacco or sulphur, etc., without any farther attention, and does not require the constant blowing of other similar apparatus, either by bellows or fan, an improvement that must recommend it to all who have experienced the annoyance and inconvenience attendant on the use of the old forms of fumigators. To use it, the tobacco should be moderately dry, and be placed in the small moveable tray at the top of the tubular chimney; the lamp, fed by naptha or spirits, is then lighted, and the tobacco burns with a dense smoke; the tubular chimney becomes heated, and a regular draught of air through it for some time serves to keep up the combustion, as a very small quantity of naphtha serves in the lamp, which may therefore be allowed to burn out. Another recommendation of this fumigator is its small cost, for there is nothing expensive in its construction, and very little tobacco suffices for a charge.



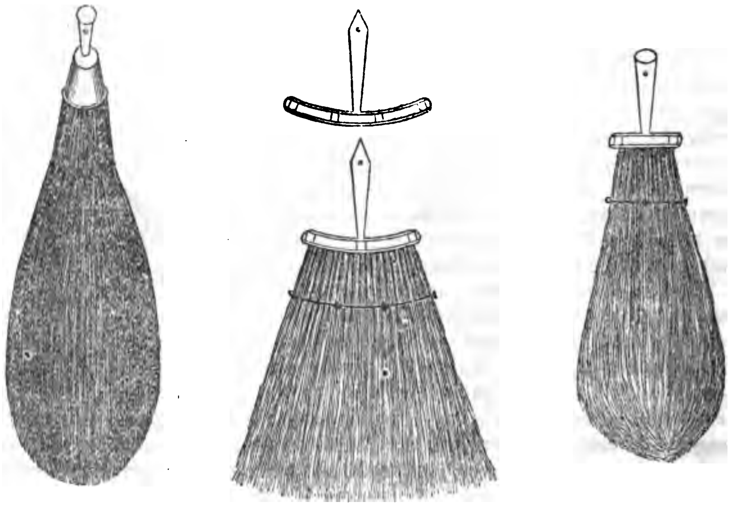
Self-acting Fumigator.

The same eminent firm have also brought out a small barrow for distributing liquid manures, or to act as a handy water-cart. It is made of strong galvanized iron, with a funnel at the top, and the supply can be easily regulated by the person who drives the barrow. This supplies a want that has long been felt, and enables us to apply liquid manure or water in an easy and satisfactory manner. Wrought iron barrows, lighter and stronger than wooden ones, are now made extensively by Messrs. Gidney, and are much more lasting and easier to work with than others.



Gidney's Liquid Manure Barrow.

Mr. W. Henderson, of the Gardens, Dunkeld, has effected an improvement in that most useful article the broom, by his newly patented broom-heads, which are made of metal, and allow of the broom being renewed whenever it has become old and worn out. The metal is made so as to embrace tightly the material of which it is desired to form the broom, whether twigs, whalebone, or cocoa-nut fibre, etc., and is designed so as to be formed into any shape, as round, broad, and narrow fan shapes, etc., and the size of the brooms may be varied at will, while the material is firmly held by teeth and regulated by the simple turning of screws. Another recommendation is that these brooms are not liable to come loose, or to get out of order, and they are very light. Any gardener or workman can make a broom with these "heads" in a few minutes, and they will be found very economical in use. We particularly recommend them, and believe every purchaser will be pleased with Mr. Henderson's invention.


Henderson's Broom Heads.

(*To be continued.*)

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OUVIRANDRA FENESTRALIS.

(*See Illustration.*)

PERHAPS, without exception, this plant presents one of the most wonderful forms in the whole range of the vegetable kingdom, and is certainly a great curiosity. It is an aquatic, from Madagascar, a country whose botanical riches are even yet imperfectly known, and from whence we have received several very fine lants. The *Ouvirandra*, as might be expected, requires stove treatient, and for a stove Aquarium is a singular ornament. By refernce to the plate it will be seen that its leaves, supported on long otstalks, are composed of a net-work of veins, which look very retty when floating on the surface of the water. It may be grown in a glass vessel, or pan of water, in the stove, where the temperature of the water is maintained as nearly as possible at 70°.

NOTES ON NEW AND SELECT PLANTS.

MELAMPYRUM INDICUM. Nat. Ord. *Scrophularineæ.*—A distinct species, occurring in Khasia, Eastern Bengal, where it forms a slender twiggy herb, about two feet high, bearing small lanceolate leaves, and scattered flowers of a blood-red colour, half an inch long. (*Journal of Botany*, vol. ix. p. 8.)

100. THUNBERGIA HARRISII. Nat. Ord. *Acanthaceæ.*—A splendid species, resembling the lately described *T. laurifolia*, but with larger and more deeply coloured flowers. It has flowered for the first time in this country with Messrs. Veitch, of the Exeter and Chelsea Nurseries, who received young plants from the Kew establishment. Its native locality is Rangoon, as also Moulmein, where it is a very common climber, of vigorous habit and, most profuse bloom. Although this striking plant has been cultivated for some time at Madras and Calcutta, it has been but very recently introduced to England, and never before figured in any botanical work. It will doubtless become a great favourite in the stove. The flowers resemble in form those of a *Hexacentris*, to which genus some have been ready to refer it, although Sir William Hooker has clearly established its claim to be considered a true *Thunbergia;* in size they measure three inches and upwards across the corolla, having a large spreading limb, which as well as the other segments are of a fine porcelain-blue, shading off to white towards the mouth of the tube, which is orange-yellow inside, and buff shaded beneath, with pink on the exterior; they are borne in large clusters, or pendent racemes, of twenty or thirty flowers in each, and make a fine contrast with the rich green foliage. The leaves, which are ovate-acuminate, measure about five inches long, and two across. It is a climbing shrub, and will be found to do well trained against a wall, or for trellis-work, and is doubtless the finest climber for the stove that has been introduced for many years. (*Bot. Mag.*, 4998.)

101. BURTONIA SCABRA. Nat. Ord. *Leguminosæ.*—This beautiful plant was originally introduced upwards of fifty years back by Mr. Peter Good, from King George's Sound, in South Western Australia but was apparently lost within a few years afterwards. It has been brought into cultivation again through the means of Archbishop Whateley, who gave seed to Mr. Bain, of the Botanic Gardens of Trinity College, Dublin, with whom it has flowered in the spring of the present year. *Burtonia scabra* is a small Heath-like shrub, bearing abundance of small pea-shaped blossoms, resembling a *Gompholobium*, the wings bright pink, and the keel deep red. The branches are thickly clothed with narrow, rather downy leaves; the habit of the plant is stiff and erect. It produces its lovely blossoms in great abundance in a well-aired greenhouse. (*Bot. Mag.*, 5000.)

102. Cælogyne elata. Nat. Ord. *Orchideæ.*—A native of Bhotan, Nepal, and several other districts of the East Indies, chiefly remarkable as belonging to a group of this genus, having hard imbricated scales immediately below the flowers. The scape bears a rather long spike of eight or ten blooms, about an inch long, creamy white; the lip spotted and blotched with orange, having three slightly raised wavy ridges, dotted with bright red. It flowers in April. (*Bot. Mag.*, 5001.)

REVIEWS.

Ocean and River Gardens; a History of the Marine and Fresh-water Aquaria, with the best Methods for their Establishment and Preservation. With twenty coloured plates from life. By H. Noel Humphreys. London: Sampson Low, Son, and Co., 47, Ludgate Hill, pp. 225. Price 10*s.* 6*d.*

Directions for the Preparation and Management of the Marine Aquarium. By R. M. Stark. Edinburgh: Edmonston and Douglas, pp. 30. Price 6*d.*

THE pleasing study of the natural history of the waters is becoming daily more popular; and as a means of diffusing an extended knowledge of nature in some of her most lovely aspects, as well as of an increasing and almost endless source of amusement, deservedly so.

To meet the demand for information on the management of aquaria, both salt and fresh-water, several works of more or less pretensions have appeared in rapid succession, for although there is no great art in treating the contents of an aquarium properly, and securing the health of its inmates being simple and easy when one knows how to do it, it is a matter in which the beginner will probably fail, unless he be acquainted with a few main points to which his attention should be chiefly directed. To point out the best subjects for "cultivation," and the most successful method to be pursued, the aquarian may now avail himself of a variety of works,—two excellent ones we have great pleasure in introducing to the reader; the one by Mr. Noel Humphreys, a gentleman of acknowledged taste and known experience in this fascinating study, and the other by Mr. Stark, of Edinburgh, who has made cryptogamic botany and microscopic investigation his peculiar study. The two works are adapted to supply the wants of the beginner as well as the more advanced student.

"*Ocean and River Gardens,*" is an excellent work, written in Mr. Humphrey's most pleasing style, and supplies a fund of information. There are, we should imagine, no admirers of aquatic natural history who would regret the outlay of half a guinea for this book, for not only is it written in a most attractive style, and illustrated with twenty beautifully coloured plates, but it contains an amount of sound, practical information we have not hitherto met with. Speaking of the " floor of the ocean," Mr. Humphreys observes—

" The wonders of the ocean floor do not reveal themselves to vulgar eyes. As the oracle was inaudible to sacriligious listeners, and as none but poetic ears heard the cadence beating of the feet that danced to unearthly music, near the fountain haunted by the muses of classic fable—so none but the initiate can see the myriad miracles that each receding tide reveals on the ocean floor. The initiation, however, is not mysterious; there are no dark rites to observe—no Herculean labours to accomplish, as I have said, before entering upon the noviciate which at once opens a large area of unexpected pleasures, and an ample field for admiration and investigation. A few elementary works carefully studied, or even this present little book attentively perused, would supply the first helps towards *seeing*, at all events, a portion of the ' wonders of the shore,' as the brilliant author of ' Glaucus,' has eloquently termed those revelations of the retiring deep. * * *

" Those who cannot *see* nature, who cannot see more than an unclean thing in the little creeping beetle, are like one gazing at the carved record of an obelisk, who perceives in the hieroglyphic scarabæus simply the sculptured figure of a beetle, and no more. They are in a state of ' Egyptian darkness' as regards one of the highest and most enchanting fields of human research. But to those who have acquired this rare though easy art, and learned to see nature, even to a moderate extent (for in that art are an infinite number of degrees and gradations), the aspect of the ocean floor must present an appearance as beautiful and strange, and seemingly as supernatural, as the wildest imagination could depicture.

" When poets would travel, in their inventive flights, to other floating and revolving worlds than ours, they describe rosy skies, instead of azure, and trees like branching crystals, with jewel-like fruits glittering on every stem. They present us with pictures, in short, in which all the ordinary aspects of our planet are reversed, or metamorphosed, in the region of their invention; yet in their wildest and most fanciful pictures they do not surpass in strangeness the wonders of the world beneath the sea.

" On the land, we have, as the ordinary aspect of nature, the green herbaceous mantle of the earth below the eye, and the azure sky above; while a spectator, standing beneath the water on the ocean floor, would see these features more than reversed; he would see above him a liquid atmosphere of green, and below, an herbage of red or of purple hue, exhibiting strange yet exquisite forms, such as no terrestrial vegetation displays. Roseate shrubs of jointed stone, and arborets of filmy glass, and creatures full of active, energetic life, whose forms are stranger still, both in structure and appearance; mere worms, whose colours are gorgeous as the tints of the butterfly's wing, or the peacock's tail, or the humming bird's breast.

" What scenery is formed by those miniature forests of *Delesseria sanguinea*, so lovely in their tones of soft rich crimson; and those fan-like shrubs, the crispy graceful tufts of the brightly tinted and singularly formed *Padina pavonia;* the tree-like masses of *Callithamnion arbuscula*, the delicate *Ptilota plumosa*, and the purple-tinted *Corallines*, forming themselves into those

' Arborets of jointed stone,'

so exquisitely described by a recent poet. And then there are the high waving fronds of the grandly graceful *Porphyra vulgaris*, the deep carmine of the *Iridæa edulis*, the nacreous tinges of the *Chondrus crispus*, and the blood-red of the splendid *Rhodymenia lacinata*, with its embroidered and lace like edges; these, with the gorgeous tufts of the rich purple *Bangia*, and other objects which form the elements of still life in a submarine landscape, surely cannot be surpassed, either for magnificence of colour or variety of structure.

" But to these features must be added others more extraordinary—forms that the elder naturalists imagined between the animal and vegetable creation, but which are now known to have no affinity with plants, though they exhibit, under many aspects, all the appearance of expanded flowers of various hues, displaying the forms of the Carnation, the Anemone, the Mesembryanthemum, and the blossoms of other beautiful flowers whose names they bear. These curiously beautiful zoophytes, the wonderful *Actiniæ*, exhibit every tone of colour, from purple and scarlet to green and white, and might be taken in their picturesquely placed groups for rare exotic flowers, planted among the rosy-tinted shrubs expressly to add the last touch of richness and effect to the scenery of an ocean flower-show.

"Yet they are not flowers, but animals—sea monsters, whose seeming delicate petals are but their thousand Briarean arms, distinguished as the petals of a flower, and expanded to seize the unconscious victim as he passes near the beautiful form—fatal to him as the crater of a volcano; in which he is soon engulphed by the closing tentacles of his unsuspected enemy. And if he pass not near enough for that deadly floral embrace, and escape the fatally beautiful petals, those pretty crimson tubercles that dot so gracefully the seeming stalk, beneath the seeming flower, can shoot forth a thread, armed, like the fisher's line, with a barbed hook, which strikes and secures the distant prey; and so the unwary *Annelid* or *Infusory* is captured and devoured. In this capacity the *Syren Actinia* has been compared to Pope's spider, who

'Feels at each *thread*, and lives along the line.'

But then the living thread of the *Actinia* (or of the *Cirriped*, which has a similar power), is a fact, while the sensitive gossamer of the poet is a fiction.

"But notwithstanding these ogre-like attributes, the lovely *Actinia* long deceived even our naturalists as to its true nature—and of course the poets—from whom this flower-like disc and petaloid tentacles completely concealed his grosser nature. Then, as the tide recedes, he so meekly closes his beautiful *oubliette*, with so much grace, and looking so much like those shrinking flowers that close at eve, as though they dared not to look on the black darkness of the night, that it is no wonder the poets beguiled, and that the romantic Southey sings of the *Actinia* as of some lily of the deep that, on the retiring of the ocean,

'Sinks down within its purple stem to sleep.'

"To add to the wonders of this strange landscape, come the creeping *Nudibranchs* and *Tectibranchs*, gliding over the gracefully waving *Algæ*; their elegant forms, decorated with their external breathing apparatus, so delicate and fragile, that it looks like a spectral star gliding above them, or like the pale skeleton of some delicate flower, so fine are its milk-white filaments, arranged nearly always in a symmetrical and star-like form, and then there are the singular and shadowy *Medusæ* floating past, in the form of parachutes, with low suspended cars, just as though the science of ballooning had been carried to perfection under the sea, and that they were made of elastic glass, instead of silk, though richly flushed with iridescent and varying tinges, sometimes of metallic azure, and anon of emerald green; hues that seem added by some delicate process which the glass-blowers above the water have not yet discovered. Some of these creatures are fragile as a soap-bubble, to which their transparency and prismatic flashes of colour give them a curious resemblance; and their ephemeral existence, dependent upon the will of even an angry ripple of the element in which they live, is doubtless as brief.

"The deep has even its butterflies, as well as the land: for the fluttering of the fins of some small and brightly coloured fish has been compared to the action of the wings of moths—as have also the locomotive membranes of some of the animals of the univalve shells. Then there are minute phosphorescent animals, which represent the fire-flies of the south, pouring a living flood of light through the water, as they glide along—some emitting silvery, and others golden flashes, like floating lamps that seem hurrying to light up the darkness of the far ocean depths.

"Even the worms are gorgeous and wonderful in this subaqueous world. The

> *Serpulæ*, with their radiating coronets of crimson *branchiæ;* the *Pectinaria*, with its golden comb, glittering in burnished brightness; and the *Nereis*, with white and crimson stripes, are all wonderful as well as beautiful objects. But the *Halithea*, or Sea-goddess, as Lamarck has named it, from the extraordinary beauty and the gorgeous colours that radiate from the silky hairs with which it is clothed, surpasses them all. These, and other wonders of still greater beauty, will reward the persevering student who learns to *see* them; but he *must* learn."

Mr. Stark's "Directions" are brief, consistently with the low price of his little book, but decidedly practical, and show in a clear and concise manner the chief points to be attended to in the formation, stocking, and subsequent management of the marine or salt-water aquarium. For the information of such of our readers as are not already in possession of the "Directions," and to show how easily a supply of suitable water may be obtained, even in places where sea-water is not to be had, or with difficulty, from its native source, we venture to transcribe Mr. Stark's instructions regarding the supply of this necessary element. He says (page 10)—

> "At this stage the aquarium is supposed to be ready for filling with water, and prepared for the reception of its inhabitants. Those who reside at or near the coast will have no difficulty in procuring the necessary supply. Where at all practicable, it is desirable to have it from mid-channel, as being that most free from impurities; that, however, from the shore, especially at full tide, will do very well, so that it is not taken too near the inlet of a fresh-water stream, or in places where noxious or liquid matters may be flowing outwards from the land. The casks or jars which are used for bringing it home, as well as their stoppers, must be scrupulously clean, and free from the taint of any liquid that they may have contained previously, as a little neglect in this particular has frequently proved fatal to large numbers of the marine animals. The tannin principle in new oak wood casks is prejudicial. Nice plans of baskets, fitted up for the use of collectors, with glass jars, bottles, and implements for chipping off the rocks, with weeds and sea-anemones, are described by Mr. Gosse and other writers. These vessels should stand for a day or two before the water is drawn off into the aquarium, that any sediment may fall to the bottom. To prevent any shaking when it is done, a syphon of zinc or gutta-percha should be used, allowing the water to fall on a smooth, hard surface, such as the bottom of a saucer, that the gravel or sand be not disturbed. Such as live at a distance from the sea, and have a large aquarium to supply, instead of getting the necessary quantity of water sent them, may, with the aid of the chemist, provide themselves with an artificial preparation, in which marine animals and plants will thrive almost as well as in their native element. The following component salts, when mixed with rather less than four quarts of spring water, were found by Mr. Gosse (see *Magazine of Natural History* for July, 1854) to answer the purpose admirably:—

Common table salt	3½ ounces.
Epsom salts	¼ ounce.
Chloride of magnesium , . . .	200 grains troy.
Chloride of potassium	40 „

> Those who do not wish to have the trouble of obtaining and weighing separately the different ingredients, may have them done up in one packet. Enough for three gallons may be had for a shilling."

The following judicious observations on the selection of sea-weeds, etc., should be read with attention, as some of these delicate forms of vegetation are more suitable than others for small aquaria:—

> "Having thus provided our aquarium, whatever be its form, or the material of

which it consists, with the necessary bottoming of sand or gravel and proper water, we proceed to stock it with a suitable variety of plants and animals.

"Plants are mentioned first, inasmuch as it is on the oxygen given out by them, under the influence of light, that the life and health of the animals in a great measure depend. It is necessary, as has been already noticed, that these Algæ, or marine plants, be immersed in the water for some time previous to stocking it with animals, that a supply of the necessary air be generated, and a growth of animalcules which constitute a great proportion of the food of the Actiniæ, etc., be promoted. This is more especially requisite, when water made artificially is employed. Further reference to this subject will be found under the head of *aeration*.

"The green Algæ, known to botanists as *Chlorosperms*, are found to be those which give out oxygen in most abundance. They grow in greatest quantity near high-water-mark. Of these the broad-leaved *Ulva* is the most useful. The plants of this found growing in the tide-pools are always more succulent and healthy than those left dry among the stones and rocks by the receding tide. Next to it may be mentioned *Enteromorpha*, with narrower fronds, and the *Conferva* and *Cladophora* plants, which produce bunches of silken or woollen fibres floating in the sea-side pools. These therefore, especially the *Ulva*, it is better to have first and by themselves in the aquarium. A few small species are quite sufficient for several gallons of water. Next to these in point of usefulness are the red-spored Algæ (*Rhodosperms*), those beautifully cut and feathered species so well known in a dried state. Of this large family, *Lawrencia pinnatifida*, *Iridæa edulis*, *Phyllophora rubens*, *Corallina*, some *Delesseriæ*, *Chondrus*, purple specimens, and *Polysiphonæi*, have been chiefly recommended. They must, however, be introduced at first in small quantities, and with caution, as they may be regarded as the 'florists' flowers' of the aquarium. *Griffithsia setacea* is said to be the 'only one' out of many 'that may be safely used in a well-seasoned tank of artificial water.' The olive-spored Algæ (*Melanosperms*), represented by tangles, oar-weed, etc., are, with two exceptions, unsuited for the aquarium. They give off a mucous substance in great quantity, which cannot be got rid of as in the wide ocean, and speedily injures the purity of the water. In procuring these plants, it is desirable to have them in a fresh and growing state, so that if chipped off with a portion of the rock or stone on which they are found growing, success with them is more certain. The *Ulva*, however, is not quite so nice, and it is a frequent thing to find it in an aquarium floated with a piece of cork. Any decaying portion, which in the green species appears white and in the red, orange patches, should be carefully removed as soon as it becomes visible, and if this is attended to, the rooting of the plant is a matter of very little importance. Before putting in the weeds, care should be taken to remove from them, or the pieces of rock to which they may be attached, any small shell-fish, sponges, or zoophytes which may be adhering to them, otherwise they will speedily die and corrupt the water. It is amazing how much damage may arise from a very little neglect in this particular. The red species are more apt to be infested with the sponges and zoophytes, and some of these can scarcely be detected till they are put in water, when the parasites are detected by the rough or hairy substance clothing their stems and fronds.

"Besides promoting the health, and affording protection to the animals in the aquarium, these Algæ, when judiciously arranged on its floor or rockwork, add much to its beauty, and afford scope, as has been already hinted, for exercising the taste of the aquarian."

FLORICULTURAL OPERATIONS FOR SEPTEMBER.

IN THE FLOWER GARDEN.

General Operations.— *Borders*, dress, and continue to fill up spaces, where bulbs have been removed, with autumnal annuals in pots. *Composts*, collect and prepare. *Divide* perennials and other hardy fibrous-rooted plants. *Edgings*, trim, or plant new ones. *Evergreens*, plant. *Grass Seeds*, sow. *Hedges*, clip, now is the best time. *Seeds*, gather as they ripen, and sow hardy kinds. *Stems*, remove all decaying ones, so as to maintain a neat appearance. *Sticks*, place to such tall plants as require them, and tie up; remove where they have become unnecessary by tops dying down, etc. *Surface soil*, continue to stir. *Transplant* perennials, etc. *Turf*, lay down. *Verges*, trim. *Walks*, keep clear, sweep, and roll hard. *Water*, attend to; many plants will only need a reduced supply. *Weeds*, continue to hoe and pick off.

CULTURAL DEPARTMENT.—*Aconite, Winter*, plant early in the month. *Anemones*, sow seed, and plant. *Annuals, hardy*, sow. *Auriculas*, may be repotted, if not already done; see last month's directions; shade and water; prepare a frame for their reception. *Biennials and Perennials*, sow, and transplant to gain strength. *Bulbs*, should now be planted or potted; the pots may be plunged in dry ashes; plant out in patches Snowdrops, Crocuses, Jonquils, Hyacinths, and Tuberoses; the former two or three inches deep—the last two, five or six inches. *Carnations and Piccotees*, layers may be taken off; they should be planted three in a forty-eight-sized pot, or two in a sixty; place them on tiles, or a floor made of concrete, to prevent worms getting into the pots; the soil should be sweet and good, but rather poor, to prevent the layers from unduly pushing, also have a liberal drainage to prevent injury from an excess of wet. Let the petals of all decaying flowers be immediately taken away from all pods likely to produce seed; they will be liable to rot if this be not done. *Chrysanthemums*, old plants grown in the open ground, that are to be taken up in October with entire balls, and potted in order to bloom in-doors, should now have the roots cut, by means of a sharp spade, round the plant at a suitable distance, to form a ball of the proper size for the pot. This operation prepares them for the purpose, without giving such a check to the plant as to prevent its blooming satisfactorily. Give water and liquid manure liberally to plants in pots, and take in-doors the *early* flowering kinds. Any plants that it is desirable to grow to an extra size should be shifted immediately into large pots, and placed in a warm situation out of doors. Layer the branches of the prepared plants in the open ground by the middle of the month, securing each by a peg, and raising the layer somewhat, to induce erect growth, and tie it to a stick. *Dahlias*, flowers required for exhibition must be shaded from the sun, and protected from rain or powerful winds. It is best to begin at an early stage with such flowers, so that the petals may be preserved from injury. It must be borne in mind that much shading will injure the colour of the flowers, so that shading should only be adopted whilst the sun is out. The shades should also be arranged in such a manner that the blooms may have air, or removed in the evening; secure them so that the blooms may receive no injury from friction. As soon as the seed is perfectly ripe, gather the pods from all good flowers, or promising sorts. Earwig traps must be looked to regularly, and watering attended to. Look over seedlings, and save none but such as are distinct, and promise to be an improvement on existing flowers. *Evergreens*, cuttings may be put in, commencing early in the month. *Hollyhocks*, gather such seed as is ripe on the early-blooming plants, and cut down the stalks in order to induce the early production of good topped crowns of short shoots before winter, Those plants desired for early blooming next season must be planted towards the end of the month, the ground will therefore require to be trenched, and enriched with manure previously. The Hollyhock flourishes best in a sandy loam, at least two feet deep, on a dry subsoil, with a large proportion of rich manure trenched in with a sprinkling of bone-dust. Seed may be sown immediately it has ripened, in pots or shallow pans; place them in a frame, and when strong enough pot off. Cut down flower-stems when the bloom is spent. *Lilium lancifolium*, when in flower discontinue the supply of liquid manure, and as the bloom declines, withhold water entirely; similar treatment applies to the tribe. *Pansy*, plant another bed, which, surviving the winter, will begin to bloom by the first week in April, and continue to midsummer. Put in cuttings in a border with a north aspect; or if in pots, where they can be kept shady. Sow seeds of first-rate flowers. *Pinks*, should all be planted; look over beds, and see that they are clear of weeds; transplant pipings. *Polyanthuses*, keep the stems earthed up in beds or borders; those in pots may have the same treatment as Auriculas. *Ra-*

nunculuses, see last month's instructions, which may still be carried out, for preparing beds; sow seed. *Rocket, double*, separate offsets from the parent plant, pot them off into sixties, and place in a frame, to have them established before winter sets in. *Roses*, cut the ligatures as soon as the buds begin to swell, *behind* the bud, but leave the bast on, which will protect them, in some measure, from the sun; at the end of the month remove it entirely. *Perpetuals* may be budded to the end of the month. Cut out pods from all plants that have done blooming; secure plants to stakes, and fork over the beds in the rosarium, adding some good old manure. *Scillas*, plant. *Stocks, intermediate*, early in the month pot off seedlings sown in July, into sixties, using light sandy loam; here they may remain till next month. *Tigridias*, take up bulbs towards the close of the month. *Trees and Shrubs*, from the middle of this month to the middle of November is decidedly the best time to remove them, not merely because of a rest in their growth at this period, but as fresh fibrous roots will be formed before the severe weather sets in, which will greatly assist a renewed and vigorous growth. Whenever the leaves of recently planted evergreens dry up and remain on the plant, its early death is pretty certain to ensue, but if the leaves fall off soon after planting, and the bark keeps plump and green inside, the plant will grow. If the weather be dry, sprinkle the branches over with water in the evening, and it will promote the early pushing of shoots. When planted in clumps or shrubbery borders, let them be placed from three to six feet apart, according to the growth of the species, the taller varieties at the back, and those of dwarf habit in front. The holes should be made large enough to receive the roots without crowding them, and of sufficient depth. The soil at the bottom should be well loosened before putting in the plant; prune all straggling roots and branches, and cut out such as are damaged or dead. Place the plant in the hole, gently shaking it as the soil is thrown in (well broken), so that it may insinuate itself among the fibres and roots. Tread the soil about the plant, and give it sufficient water to penetrate to the roots. *Tulips*, look over the bulbs, and keep them in good condition. *Verbenas*, last month's directions may be attended to still. *Violets*, pot and plant. *Yuccas*, when showing bloom should have an abundance of water.

IN THE GREENHOUSE, COLD PIT, AND FRAME.

General Operations.—*Air*, give plenty both night and day, unless the weather be very unfavourable. *Ashes*, spread a tolerably thick layer over the floor of the cold pit, whereon to stand the plants that will be introduced to pass the winter. *Cuttings*, may yet be put in. *Flues and Pipes*, repair and clean. *Glass*, wash and repair any broken squares. *Pots*, wash and cleanse before taking plants into the pits or houses. *Propagate* all kinds of half-hardy plants, as *Calceolarias, Petunias, Verbenas, Salvias, Geraniums*, etc., either in pots or shady borders. *Seedlings*, as soon as they are large enough, prick out. *Plants*, may be taken into the greenhouse by the end of the month. *Water*, give liberally to such things as are growing freely, or intended for winter flowering. Keep the greenhouse and pits clean and free from vermin of all sorts.

Cultural Department in the Cold Pit and Frame.—*Alpines*, about the end of the month it is well to place the more rare and delicate species in their winter quarters, a cold pit being the most suitable place, plunged in ashes; covering may be kept off unless the nights be frosty. Seedlings may be pricked out into pans to strengthen them for the winter. *Annuals*, as *Schizanthus, Nemophila, Collinsia, Clarkia*, etc., may be sown for early spring blooming, about the end of the month. *Bulbs*, those intended for early blooming, as *Narcissuses, Hyacinths, Tulips*, and *Erodiums, Lachenalias*, etc., should be potted and placed in gentle heat. *Cinerarias*, sow for ate blooming, and prick off seedlings. *Cobæa*, etc., pot off separately the cuttings into ixties, and return them to the cool frame, where they are to be treated throughout the winter as other tender plants. The plants raised from cuttings grow more profusely, nd are larger to turn out in May than those raised from seed. *Fuchsias*, put in cuttings; *Bedding varieties*, take off a quantity of young shoots, cutting them close to the old wood; strike in forty-eight sized pots, in silver sand, well drained, and place in heat. The following species are well adapted for bedding purposes:—*Gracilis, tenella, virgata coccinea, globosa, microphylla, and thymifolia. Hyacinths for forcing*, pot in a compost made of equal parts two year old cow-dung, sand, and well-rotted leaf mould; chop the whole together, and do not sift it; allow the bulb to be about half buried in the mould, and place the pots in a box-frame, covering over with sawdust, so as to fill up the frame. If a frame be not to spare for the purpose, dig a pit sufficiently large to contain the number of pots, and about one and a half, or two feet deep, covering the pots and filling it up with sawdust in like manner; the soil taken up may be drawn round the mouth as a ridge. *Mignonette for winter*, shift, stop in and water freely. Sow seed. *Mimuluses*, when out of flower, give them less water until it is withheld altogether, and put them aside in a cool frame until they begin to push in the spring. *Violets, Neapolitan*, take up and pot in thirty-twos, in a mixture of vegetable mould, dung, and loam, with the addition of a little coarse river-sand. Place a handful of broken crocks at the bottom, water them, and plunge in ashes in a frame where they may be within a few inches of the glass; draw off the lights in all fine weather. They require protection from rain and too much damp.

CULTURAL DEPARTMENT IN THE GREENHOUSE.—*Azaleas*, by the end of the month bring them into the house. *Camellias*, sponge their leaves, top-dress the soil, and bring into the house with the other hard-wooded plants towards the end of the month. *Chrysanthemums, specimens*, thin out the flower-buds, leaving two or three only for blooming, and give a supply of liquid manure occasionally. *Cinerarias*, shift for winter bloom. *Epacrises*, *Ericas*, and similar plants may be housed by the middle of the month, especially if showing bloom. *Myrtles* may be propagated by cuttings. *Pelargoniums*, bring into the house any left out of doors; exposure to sudden rains this month leads to spot on the leaf; keep clear of green-fly, and give water in moderation; shift and stop cuttings, if not done before. *Salvias*, propagate, and shift to have established by winter; cut round the roots of large plants in the border ready for bringing into the house; this direction will also apply to other plants requiring shelter, and serves to prevent their receiving a sudden check when the time arrives for transferring them from the open air to shelter. *Succulents*, these will require but little water. *Tropæolums*, the *tuberous* ones require potting as they show signs of vegetating, give free drainage, and but little water at first, until they are well rooted.

IN THE STOVE.

GENERAL OPERATIONS.—*Air*, as last month. *Cuttings*, pot off as soon as possible to have the plants well established before winter. *Composts*, prepare and turn over occasionally, keep the heaps clear of weeds, and if possible preserve them in a dry place or under shelter. *Decayed leaves*, as these will begin to be increasing in numbers, look out for, and remove them as soon as detected. *Insects*, destroy. *Shade*, may be gradually withheld from most plants. *Stove Plants*, in frames or pits will require matting up towards the end of the month, at nights. *Top-dress* and *tie up*, occasionally. *Water* may be given in reduced quantity to all plants out of bloom, or not coming into flower; use the sponge to all large foliage.

CULTURAL DEPARTMENT.—*Achimenes*, as they go out of bloom, place the pots on their sides in a dry, cold pit; plants of *A. picta* for winter bloom continue to encourage. *Climbers*, prune in freely, and tie up to the rafters; those in pots may be turned out of doors for a time, but brought in towards the end of the month; whilst out of doors, give the leaves a good syringing to clear of any red-spider or other pests. *Dendrobiums* and *Epidendrums*, a lower temperature suits them; see last month's instructions. *Gesnerias* and *Gloxinias*, out of bloom, withhold water gradually, and place in a cool dry pit. *Lælias*, will now require plenty of water as they are forming blooming spikes. *Winter-flowering plants*, will be benefited by having all possible encouragement to produce fine bloom.

* * *

QUESTIONS, ANSWERS, AND REMARKS.

BLUE HYDRANGEA.—I should be glad to learn, through the medium of your useful work, the true cause, if known, of the pink flowers of the Hydrangea turning blue? I have seen some plants possess this tint of a very decided character, and have myself adopted several plans for producing it, and have frequently failed.—*Ludovicus.*

[Sometimes the Hydrangea will come blue without putting you to the trouble of experimenting for that purpose; it appears to take the blue tinge more readily at some times than others. It frequently happens that no care, or recipe, has the desired effect on it, and the flowers remain pink in spite of all you can do to turn them blue. Solutions of alum, iron, carbonate of soda, peat-ashes, and common salt have each their advocates, and all succeed—sometimes. Water in which tan has been steeped has been recommended strongly, but this we have never tried. It is generally allowed that the fine yellow loam found on Wimbledon Common, Hampstead Heath, and at Stanmore is certain to produce the effect; as also the peat found in the Scotch bogs. as well as near Berlin and St. Petersburg; but these soils are frequently out of the reach of cultivators unless in the respective localities. The Hydrangea is sometimes turned blue by being planted in fresh loam, and at other times peat. Perhaps some of our correspondents may have something to reply on this subject in an early number. The finest blue Hydrangeas we ever saw were in the gardens of the Duke of Devonshire at Chiswick, where they flowered beautifully last year.—Ed]

TRITONIA AUREA.—When should I sow seed of this beautiful bulb, and what subsequent treatment is necessary to the young bulbs? A reply will oblige.—*Maria, a Constant Reader.*

[Sow the seed in November, and place in a gentle heat, the young blades will make their appearance in the space of about six weeks; when they are a couple of inches high take them into a warm greenhouse, where they should have air. In March divide the ball of earth, disturbing the young plants as little as possible, and repot them. They will flower in September following.—Ed.]

SHRUBS FOR A TOWN GARDEN.—What shrubs may I plant in my small suburban garden? I have not much room, but desire to plant a few select kinds, both deciduous and evergreen. If any reader, or yourself, Mr. Editor, would assist me so far as to give me a list of suitable things, it will oblige—*A Reader in the South.*

[In compliance with our correspondent's wish, we annex the names of a few shrubs which may prosper with him, and are too seldom met with in gardens of limited dimensions, from which he may select according to taste. *Deciduous:* Amygdalus nana, var. flore pleno; Cytisus, most of the genus—when wrought as standards they look well on a lawn; Cydonia Japonica, this makes a fine hedge, or may cover a dwarf-wall. Robinia hispida; Genista, any kinds wrought as standards; Magnolia conspicua, for a wall; Ribes, most of the genus; Spiræa Douglassii; Syringa Emodi; Weigelia rosea; Andromeda, any kinds; Forsythia viridissima; Azalea, many fine hybrids. *Evergreens:* Cerasus ilicifolia; Euonymus Japonicus; Ilex aquifolium, several varieties; I. latifolia; Benthamia fragifera; Berberis, many evergreen species; Buxus balearica; Cistus, most of the genus; Cotoneaster microphylla, trained on a wall, or as standards; Daphne, any of the hardy species; Escallonia macrantha; Fabiana imbricata, for a wall; Garrya elliptica; Philyreas; Mahonias; Arbutus; Yuccas; Rhododendrons, a host of very handsome kinds; Kalmias; Ledums; and Hardy Heaths.—Ed.]

PLANTS AND ANIMALS.—The amount of the dependence of animal life upon the disengagement of oxygen gas by plants may be estimated by supposing existing vegetation to cease evolving free oxygen, or (which would come to the same thing) by supposing some new operation in the organic world to absorb this element as fast as it is given to the air by plants. How soon would the diminution of the oxygen of the air be felt, even by the higher classes of animals? Making the needful calculations, M. Dumas has answered this question by assuming that the unbalanced action of the whole animal kingdom for a century would not consume more than 1-8000th part by weight of the oxygen of the atmosphere, "a quantity altogether inappreciable to the most delicate means of investigation we possess at the present day, and which certainly would have no influence on the life of animals;"—that, as respects the higher races of animals, "it would require no less than 10,000 years before all the men on the face of the globe could produce an effect which should be sensible to *Volta's eudiometer*, even supposing vegetable life to be extinct during the whole of this time," so vast is the original stock of this important element of the atmosphere. Surely, then, we ought not to call this remotely needful action upon the air the essential office of vegetables in the economy of the world, nor view as a subordinate or concomitant end that operation of organizing matters which provides the whole animal creation with sustenance, and the failure of which for a single year would depopulate the earth. Nor should we call that the essential office of vegetation, which certainly was not essential (as the other was) to the existence of an abundant animal life before and during the epoch of the coal formation, and which (however propitious) has not been proved to be necessary even to the existence of man. Of course there is no question here of this as a function of vegetation, and of the reciprocal action of the two kinds of organized beings upon the air, as maintaining the balance of its elements; but even here it is not always considered that, as Sir Boyle Roche once said, "the reciprocity is all on one side;" that though the animal kingdom could not exist at all without the vegetable, yet the vegetable kingdom might very well exist and flourish without the animal. In other words, the vegetable creation is a provision for the animal,—immediately and continually essential, in one respect; remotely and contingently needful, possibly essential to its well-being, but not to its being,—in the other.—*Edin. New Philos. Journal.*

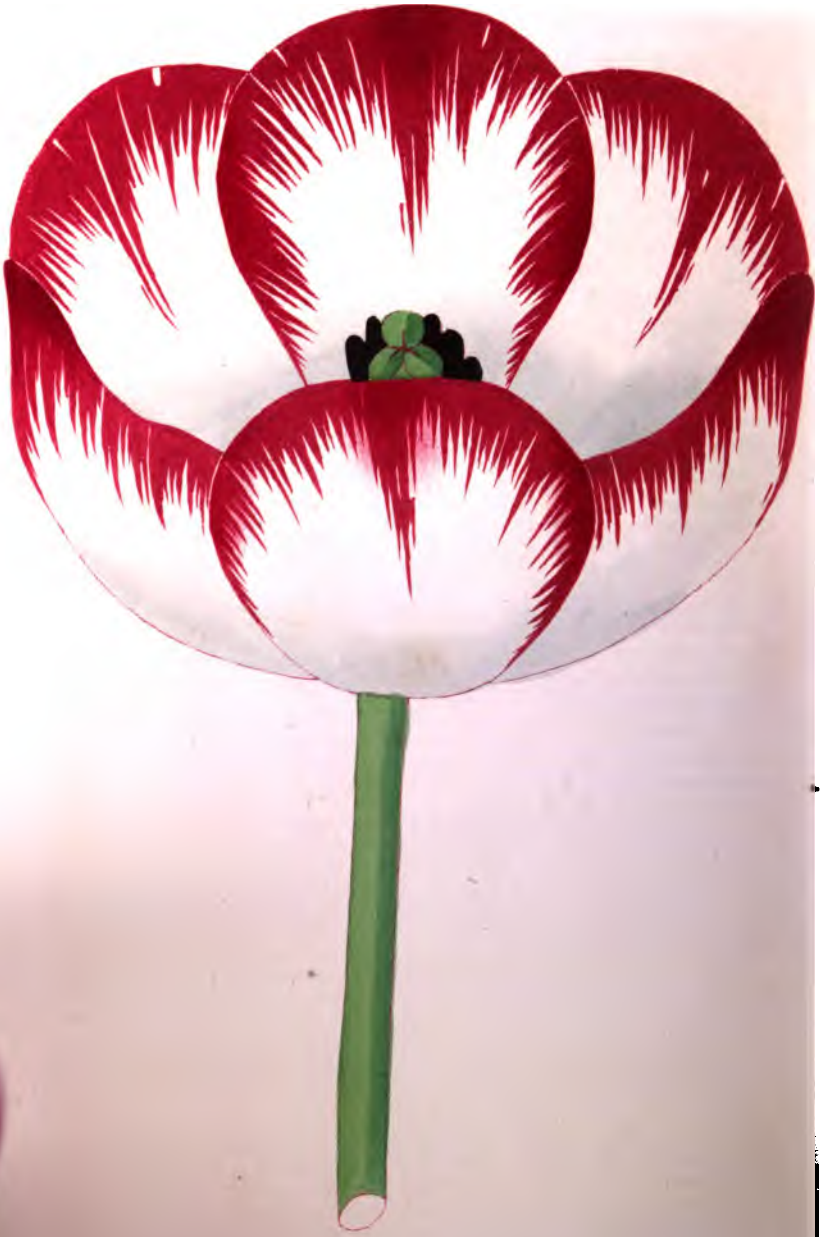
Out-of-door Succulents.—Of the various groups of plants, there are perhaps few more deserving of notice than hardy succulents, inasmuch as they may be grown with success by every one. They are plants which require very little attention, so tenacious of life are they that many of them will flourish in situations where few other plants will live, except Mosses and Lichens, rocks and exposed places being the situations in which they are generally found. Sedum acre, one of the most common Stonecrops, is often met with occuping the sill of the cottager's window in pots, growing, and flowering profusely. The common Houseleek is universally known to grow on the roofs of houses, and tops of walls, and is generally passed by unnoticed; but if the flowers be examined minutely they will be found to be no less beautiful than they are curious in their structure. For artificial rockwork, we have no other plants that will survive during summer in the crevices and hollows of stones, to give them a lively appearance. As regards the delicate species, the main thing to observe is, that they shall be placed close to a stone or brick, in such a way as to be shaded by it from, at least, the noonday sun; it is true that the branches and leaves may soon grow beyond the shadow, but that is unimportant so long as the roots are moist. Wherever plants are so excitable as to push very early in the spring, the north side of the whole mass of rockwork should be selected for them, unless they are as hardy as Primroses and Violets. When a particular kind of soil is required, it should be provided by enclosing a space with bricks, hidden below the surface; by this means plants requiring peat, loam, clay, chalk, etc., may be made to flourish side by side. If little marsh plants are also desired, a proper place may be made for them on the north side of the general mass by sinking a hollow, puddling it, filling it with bog-earth, and shading it by superincumbent masonry. In this way charming little things like Parnassia, Anagallis tenella, Menyanthes, Drosera, Pinguicula, and Samolus may be grown within a few yards of the fragrant herbage from Dover cliffs. As to the plants to be thus employed it is useless to give a list, because, after all, the power of cultivating particular plants will depend on climate. Rockwork plants will thrive in all their wild luxuriance in Worcestershire, Hereford, and the West, which no art can keep in beauty in Middlesex and Kent. The only way of proceeding is to try experiments, to consult the intelligent nurserymen of the neighbourhood, and to observe what thrives in their care. Every dealer can furnish a list of plants suitable for rockwork, and give instructions which possess local value. In managing the plants after they are selected, the main object is to prevent their overrunning each other; for in rockwork, as well as in other associations, the strong are often inclined to bear down the weak. No prettier spring things can be found for rockwork than *Aubrietia*, *Arabis*, *Alpina*, and some of the *Alyssums;* nor any summer plants more useful than some of the broad-leafed Sedums, and the Ivy-leafed Toad-Flax; but they are encroaching neighbours unless attended to incessantly.—*D. K.*

Rose Insects.—I made a discovery a short time ago which, I think, may be of service to some of your readers who grow Roses extensively. I have long kept my Rose trees quite clear of green-fly and spring vermin by using a mixture composed of the following:—To twelve gallons of cold water add one bushel of soot, and half a peck of unslacked lime; stir and mix. Allow it to stand for twenty-four hours, in which time the soot will have risen to the surface; skim it off. It may be afterwards used several times. Syringe the Roses with the liquid from a hand-syringe or a garden-engine. But though this mixture is perfectly efficient during the spring, yet about this time of the year an enemy appears on whom it has no effect. This is a small white grub, with a scaly brown head, the scales of which are of a surprising hardness and strength. It destroys the fleshy part of the leaves, leaving them skeletons of fibres, not unlike fine lace. Though curious, these destroyed leaves are in a mass unsightly. I need hardly add that this premature destruction of the leaves seriously injures the health and strength of the plant. I have till lately been quite unable to get rid of this pest by any other method than the laborious one of picking them off by hand, which, in large collections, is all but impracticable. The lime and soot mixture, tobacco-water, snuff, sulphur, I have all tried in vain. I find, however, that by adding one pound of soft-soap to the twelve gallons of lime and soot water, this grub is effectually and quickly destroyed. The soft-soap should be dissolved in warm water before it is added to the other ingredients.—*William Corvell.*

THE POMEGRANATE will grow in any good garden soil; but for the production either of blossoms or fruit, it should have a rich loamy compost. It should be planted and trained against a wall, of which the south and west aspects are preferable. The plant is propagated by cuttings or layers; the choicer varieties by grafting on the common sort, which causes them to flower better than when growing on their own roots. The varieties are the single red, which is the hardiest; the double red (*rubrum flore-pleno*), and the white (*albescens*), which are more tender; the double white (*albescens flore-pleno*), which is tenderest of all; and the yellow (*flavum*), a very rare kind. The tender varieties require some protection. The double red is the handsomest variety for cultivation, I have grown it many years against my house.—*Beta, Devon.*

NEW CONIFERS.—The rate of growth and actual dimensions of some of the *Coniferous plants* of recent introduction is not one of the least important questions in gardening. Occasionally statements relating to them have appeared in our columns, but they have chiefly concerned species that have been grown for these thirty years. As it would be interesting to know what the facts are regarding others, we place thus prominently what a correspondent, Mr. Butler, of the Widdicombe Nursery, near Bath, says about *Abies Pinsanpo*, of which so much seed has been lately given away by the Horticultural Society. He says that at Fairfield, the seat of E. D. Pontifex, Esq., is a specimen 12 feet 6 inches high, and 10 feet 6 inches through, and this he believes to be the most perfect specimen ever seen. He will, we are sure, excuse us if we at once negative the statement by mentioning that at Acton Green, near London, there exists a plant, eight years planted, which is faultless in every respect, and which measures 13 feet 6 inches in height, and 9 feet 8 inches through on an average, the specimen being feathered to the ground line. Of another Conifer of remarkable growth, *Cupressus macrocarpa*, two specimens also exist at Acton Green, nine years planted, which are respectively 24 feet high, by 9 feet 6 inches through, and 23 feet 6 inches high, by 7 feet through. And in the same place are a *Cupressus Goviniana*, nine years planted, 12 feet 10 inches high, and 9 feet through, and a *Wellingtonia*, 5 feet high, 3 feet 8 inches through, and 8 inches round the stem. All these have been measured this 1st day of July, 1857. Are finer specimens to be found anywhere in Great Britain?—*Gard. Chron.*

EUPHORBIA SPLENDENS.—This fine old plant is very showy when well flowered, and retains its beauty for a long time if suitably treated. I find the best compost to be fresh loam, well-rotted cow-dung and peat in lumps, in equal proportions, mixed ogether with a little gritty sand; use a free drainage. To keep it in shape, and induce lenty of bloom, the terminal shoots must be stopped-in; and shifting must be regularly tended to until the plant has attained the desired size, when it may be discontinued, id the Euphorbia will bloom as soon as the pot is filled with roots. A liberal supply water should be given as it is coming into flower. Cuttings strike freely in sand; ad, as soon as rooted, should be transferred to large sixty-sized-pots. It is a really ine plant when in full flower and nicely grown.—*P. M.*



BIJOU.

The Floricultural Cabinet.

OCTOBER, 1857.

ILLUSTRATION.

TULIP:—SCARNELL'S BIJOU.

SCARNELL'S BIJOU is a feathered rose Tulip, possessing many excellent qualities, as fine form and size, great purity of the white, and delicate marking in the feather, as well as good substance in the petal. It is a second-row flower, raised by Mr. Scarnell, of Brixton, and was sent out, in limited quantity, by the late well-known florist Mr. Dixon.

The present month is the best for planting the bulbs, before the fibres or rootlets have begun to push, when all injury to these delicate organs is prevented, which often occurs, however, if it be deferred to a more advanced period. In planting, the most advisable method is to rake the bed level with its boarded sides, set out the bulbs in rows, and then cover them carefully, allowing the soil to be about five inches high in the middle, and sloping it down to about three inches at the sides. This inclination is sufficient to throw off a large quantity of wet during the winter season, and prevents the necessity of screening the bed until the plants have made leaves large enough to retain the moisture that falls on them; in addition to this the bed should be well drained. A descriptive list of some of the best show Tulips will appear in an early number, from the pen of an esteemed correspondent and enthusiastic cultivator of many years standing.

THE CARNATION AND PICOTEE IN WINTER.

BY AN OLD FLORIST.

BEFORE winter arrives it may not be amiss to inform your subscribers how they may winter their Carnations and Picotees without much expense, and keep them in health without incurring such losses in their stocks as too often occur. I am an old cultivator of these, my favourite flowers, and, having tried various plans in the course of my experience, I have given preference to the following:—I choose a suitable place for setting the pots—under a wall facing the north—and lay down flat tiles in rows, on which to stand the pots, setting them pretty closely together. The tiles are to prevent the entrance of worms, and other pests, through the holes of the pots; when the plants are thus arranged, I get a quantity of sifted ashes that is tolerably fine, rejecting the large pieces that do not pass through the sieve, and strew it in among the pots, to within about an inch of the rims; over the whole I place a box-frame, and then fill up all round with more ashes to the same level, making the surface smooth. The ashes preserve the roots from hard frosts, and, in a great measure, from slugs. I do not cover up with lights, but with a protecting material made of calico, done over with linseed-oil and a little white-lead, just enough to make it water-tight; such a covering is better than glass-lights, and on all favourable occasions it is thrown off, to give the plants the benefit of air and light; when put on, however, it admits a considerable quantity of the latter necessary element. In rough weather, rain, hard frost, or snow, I draw the cover over the frame, and find it an excellent protector. When the weather is soft I look over the stock about nine o'clock at night, and see if there be any slugs stirring, which I immediately remove, and, with care and attention, my losses of plants during this trying season of the year are very small indeed; the plan is economical in every way, and when pursued, I am persuaded will save the cultivator many vexations that attend on Carnation growing, and, moreover, is a plan that is capable of being adopted by every one. A north aspect for the frame is the best, if it can be got; but is not essentially necessary to the health of the stock.

LEAVES AND ROOTS, THEIR FUNCTIONS AND STRUCTURE.

BY CLERICUS.

(*Continued from page* 249.)

LET us now turn our attention to the roots of plants. The true roots of plants are *radiculæ*, or *fimbriæ;* the rootlets striking out at all points from the stem and branches which lie under the earth. It is necessary to understand the organization of the rootlets; in my opinion very important organs to the proper growth of plants. If we make a longitudinal section of the rootlet, to the point where it is given off from the root, and continue the section through the branch of the root (the most simple and easy of demonstrations is the carrot), we shall see that, while the outer coat of the root is given off from the external coat of the root, there is a vessel running from the extreme point, or *spongiole*, along the centre of the rootlet, continuing its course entirely through the bark until it meets the ascending vessels through which the sap arises into the plant. The root appears to act to the maturer plant in some measure, and in a similar manner, as the seed-lobes, or cotyledons, to the young plant. The seed-lobes, you are aware, contain an immensity of vegetable matter of the nature of starch, which being converted into dextrine by the peculiar chemical change effected in the process of germination and vegetation by the diastase contained in the germ, and serves for the nourishment of the young plant until its organs are developed as to procure its food elsewhere.

I have made use of the term *diastase.* As that word is not in common use, it may be as well for me briefly to explain it. *Diastase* is a peculiar nitrogenised compound contained in the germ of seeds, which, upon the application of heat, moisture, and atmospheric air, commences a ferment, converting the starch of the seed into a gummy substance called dextrine—the true sap of plants. It is the chemical change which takes place in malting, converting the simple nutriment of the barley into which, on being brewed, affords the nourishing, though intoxicating beverage of ale or porter; or, when distilled, affords ardent spirits. This power, called in chemistry *catalysis,* may be further illustrated by the leaven used in baking, which is known to every good housekeeper, as "a little leaven leaveneth the whole lump."

Now the roots contain an immensity of the proper juices of the plant; nay, the proper juice is here in its most concentrated or insipid state; for, if we examine a plant, we shall find that while its proper juice is mild in the leaves, it is stronger in the twigs and branches—stronger still in the bark of the trunk—but still more concentrated in the root. Now, it is by the combined action of moisture, heat, and oxygen *upon the germ* that the vitality of the plant is excited. Moisture is absorbed, and carbonic acid gas is generated, the *plumula* puts forth its tiny leaves, and the *radicle* elongates, and penetrates the earth. That the oxygen of the atmosphere is the prime mover in this action, which, in this process, is called germination, is abundantly testified by the fact, that seeds will not germinate without its presence, and that the very act of germination is accompanied with the generation of carbonic acid gas. The moisture supplied takes up that portion of the starch which has undergone the chemical change; and a preparation of a seed in this state will show that the duct, or vessel, into which the nourishment enters so prepared, leads directly into the *plumula* or evolving leaves of the young plant. Now a process somewhat similar takes place with the root and rootlets of a plant. To excite vegetation, moisture, heat, and oxygen are required; and vegetation is accompanied with the same act of generating carbonic acid gas. You will bear in mind that the vessel in the centre of the rootlet does not only run the whole length of the rootlet, but penetrates transversely through the bark, and joins the inner or ascending sap vessels. It, therefore, appears that the following process goes on:—The concentrated juice contained in the root is, in the rootlet, subjected to the influence and action of the oxygen of the atmospheric air, and water contained in and permeating the soil. A portion of the moisture is imbibed through the coats of the vessels, and dilutes the juice contained in them; and being forced through the internal coat by *endosmose*, into the internal or ascending vessels, it meets and mixes with the water taken up by the *spongioles*, holding in solution the various alkaline and silicious compounds necessary for the inorganic structure of the plant. This mixture, constituting the true sap, ascends through the force of *endosmose* and capillary attraction, and is thus capable of forming the new leaves, the wood, the flowers, and the fruit of the plants.

Let me explain to those unacquainted with the term, the meaning *endosmose*. It has been long known that no gas, or particular air, can be confined by animal texture; and that if a bladder is filled with any gas it cannot be kept pure for any length of time; that which is within escapes through the coats of the bladder, and that which is without will get in, and *vice versa*, according to fixed and known laws. Now, it has been found that fluids are possessed of similar powers, and governed by similar laws, acting in this manner on membrane of either animal or vegetable structure alike, the lighter fluid forcing itself through the integument, and mixing with, or passing that of greater density; and after water, a gummy solution ranks first in endosmodic power. Now, as the juice of the roots abounds in gum, it follows that water imbibed through the external coat of the rootlet, and diluting the proper juice into their mucilage, the solution is forced by *endosmose* into the inner vessel, and ascends by that force and capillary attraction. It is on this principle we account for the ascent of the sap; and on no other, in my opinion, can the theory of vegetation, the development of the plant, and production of its woody fibre be explained.

(*To be concluded in our next.*)

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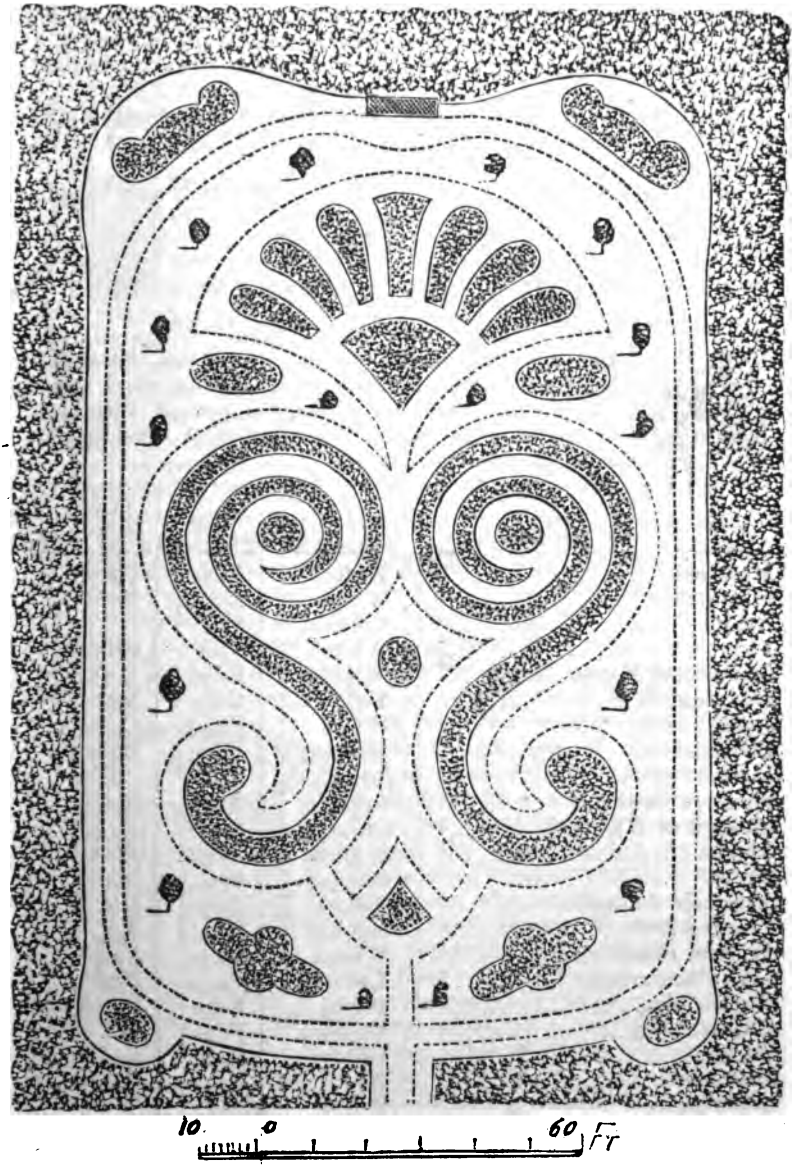
Obituary Notice.—With unfeigned regret we have to record the death of Mr. Archibald Gorrie, a gentleman eminent for his attainments in horticulture and agriculture, and author of several important papers on subjects connected with these sciences. Mr. Gorrie was born at Logie Almond, in Perthshire, in the year 1777, and was apprenticed in the gardens of Logie House, to Mr. Peter Barnet, father of the late Mr. Barnet, who afterwards became Superintendent of the Experimental Garden of the Caledonian Horticultural Society, Edinburgh. From Logie gardens Mr. Gorrie removed to Dupplin Castle, Perthshire, where, under Mr. Miller, in company with Mr. George Don, he studied British botany, which became with him an ardent pursuit. Towards the end of the last century he took charge of the hothouse department in the Leith Walk Nursery, where he made the acquaintance of the late Mr. J. C. Loudon, an intimacy that was maintained until the death of the latter lamented garden author. Mr. Gorrie contributed several papers to the *Gardeners' Magazine*, and to the *Memoirs of the Caledonian Horticultural Society*. For the last fifty years Mr. Gorrie lived as gardener and general factor to the estate of Annat, in the Carse of Gowrie. He reached the advanced age of eighty, and was cut off by an attack of bronchitis, on the 21st of July last, regretted by an extensive circle of friends and correspondents.

DESIGN FOR A FLOWER GARDEN.

BY T. RUTGER, ESQ.



The scrolls in the accompanying design may be devoted to Roses and Dahlias, or to any other arrangement that may be preferred, and the various clumps occupied with flowers in masses; choice dwarf evergreen shrubs should be selected for planting, as indicated, on the grass. The circle between the scrolls is intended for flowers, or a basin, with a fountain, ornamental sun-dial, or any other appropriate structure may be preferred.

If flowers were planted inside the grass verge in front of the shrubbery which surrounds the garden, they would add much to its embellishment.

A garden seat is shown at the extreme end, which may be substituted by an alcove.

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A DESCRIPTIVE LIST OF RANUNCULUSES.

BY MR. CAREY TYSO, FLORIST, WALLINGFORD.

AT the request of several persons I send you the names of twenty-four Ranunculuses which distinguished themselves during the past season; a few of them are new, but they are selected on account of their quality rather than their novelty:—

Name.	Ground Colour.	Class.	Colour of Marking.
Meekness	White	Edge	Purple
Melancthon	White	Mottle	Rose
Apollo	Crimson	Self	
Fairy	White	Spot	Crimson
Commodore Napier	Sulphur	Edge	Brown
Delectus	Yellow	Edge	Red
Jane	White	Edge	Crimson
Poliander	Yellow	Edge	Brown
Eliza	Straw	Self	
Sir J. de Græhame	Sulphur	Edge	Red
Marquis of Hereford	Crimson	Self	
Saressa	Sulphur	Edge	Brown
Ninus	Orange	Spot	Red
Archibald Johnston	Yellow	Edge	Red
Prince Albert	Sulphur	Edge	Red
William Bradshaw	White	Edge	Purple
Lord Palmerston	Yellow	Edge	Brown
No Mistake	White	Edge	Purple
ulliver	Yellow	Edge	Red
uclou	Yellow	Spot	Red
xaminer	White	Edge	Rose
alifornia	Yellow	Self	
xhibition	Sulphur	Spot	Crimson
uaviter	Sulphur	Edge	Red

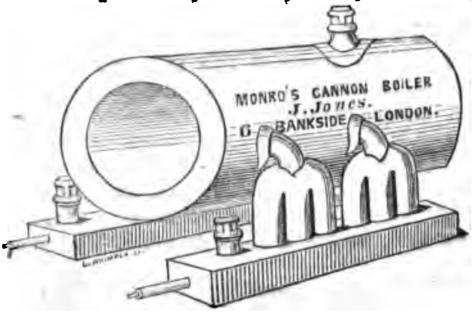
The foregoing have been successfully exhibited one or more times, which is a good evidence of their character. The tubers were in good condition when taken up, and the increase beyond the average.

* * *

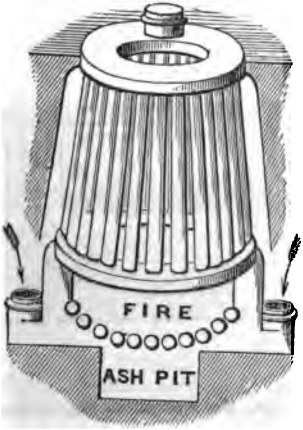
RECENT IMPROVEMENTS IN HORTICULTURAL APPARATUS, IMPLEMENTS, AND MANUFACTURES.

(*Continued from page* 252.)

OF boilers and heating apparatus we have several improved forms to introduce to the notice of our readers, commencing with Mr. Monro's newly invented cannon boiler, made by Mr. J. Jones, of Bankside, Southwark, which possesses several claims to our attention. In the first place they contain but a comparatively small quantity of water, and therefore rapidly communicate heat to a large quantity of pipe; secondly, they are economical in working, as a small amount of fuel is required in getting up a nice temperature, and, after the fire is lighted, little attention is necessary; and its rate of combustion may be regulated to almost any degree. The fire being made inside the boiler, and surrounded on all sides by a thin stratum of water, there is little loss of heat, and the cannon boiler is not liable to get out of order. These boilers, moreover, are economical in their first cost as well as in the setting up. Mr. Jones has only recently made known the invention, but we believe has received numerous applications from gentlemen who are desirous of giving it a trial. Messrs. Weeks and Co., the well-known horticultural builders, of King's-road, Chelsea, have made improvements in their upright pipe boiler, which is a very powerful and durable piece of apparatus; the circulation of water is very rapid, and will, therefore, heat a long range of houses or pits. Messrs. Weeks' heat the whole of their new winter garden,

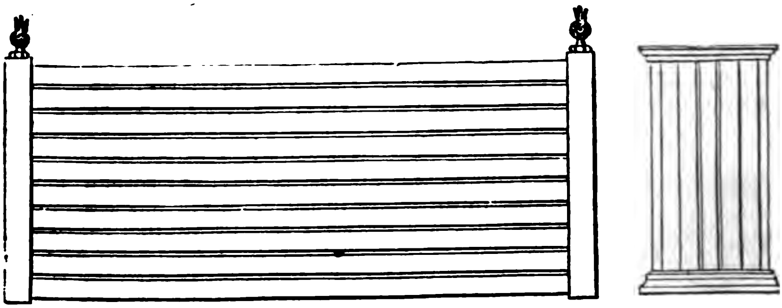

MONRO'S CANNON BOILER
J. Jones.
6 BANKSIDE LONDON.

Monro's Cannon Boiler.

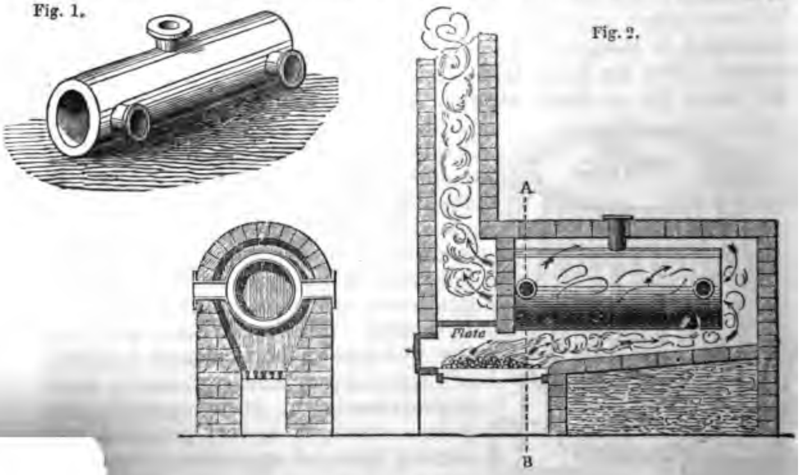


Weeks' Pipe Boiler.

and other erections, by means of one boiler of this construction, measuring about five feet high by three feet across. The peculiarity of this boiler is that it consists almost wholly of a series of pipes, around which the fire plays on all sides, thus no heat is wasted; and, as might be expected, this is another economical form of apparatus. Ornamental stacks of pipes and pedestals for warming conservatories and entrance halls, are also furnished by Messrs. Weeks, constructed on the best principles for economising heat.


Weeks' Ornamental Stacks of Pipes and Pedestals.

Messrs. Shanks, of Arbroath, have recently brought out a new form of boiler, the invention of Mr. Thomson, of Dalkeith Park, and which they call the retort boiler. Having seen this apparatus in operation, we are enabled to affirm that the performance is in every



THE RETORT BOILER.

e Single Retort Boiler, to heat 1000 feet of 4-inch pipe. Fig. 2 shows how Fig. 1 should
tion on A B.

way satisfactory. Messrs. Shanks claim the following advantages as peculiar to this form of boiler:—The exposure of a large surface to the action of the fire, with the smallest possible quantity of water, thereby causing an immediate and rapid circulation; the boiler is constructed purposely for building inside the house; by this plan all the heat radiated from it is economised for heating purposes, and this is so managed as to prevent the escape of smoke or injurious gases; the boiler, or boilers (for there are three united when great lengths of pipe are to be heated), can be swept free from soot in a very short space of time, and thus a saving of fuel is effected with a little attention in this respect; a perforated pipe is so arranged as to throw jets of air into the flame so as to effect a more effectual consumption of smoke. These boilers are already at work in several parts of the country, and have, we believe, afforded complete satisfaction. The fact is evident that we have now several excellent forms of heating apparatus, which at present, at least, do not appear capable of being much improved upon.

Fig. 3.

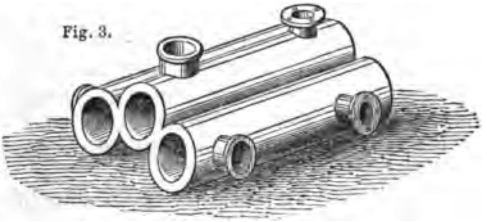


Fig. 4.

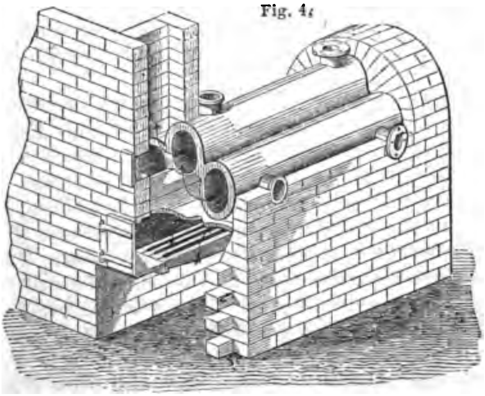


Fig. 3.—The Triple Retort Boiler, to heat 4000 feet of 4-inch pipe. Fig. 4 shows how Fig. 3 should be set for radiating heat from the boiler direct. If placed where that is not required fix as Fig. 2 is shown.

(*To be continued.*)

GRAND FLORAL EXHIBITION, CRYSTAL PALACE.

THE last great exhibition of flowers and fruits at the Crystal Palace, took place on the 9th, 10th, and 11th September, and was well attended, considering the very unfavourable state of the weather that occurred on two out of the three days the exhibition was open. As usual, at the shows held under the auspices of the Crystal Palace Company, there was a large display of flowers as well as of fruit; and we regret that the latter being without the scope of our publication, we are precluded giving a further notice of it. The collections of stove and greenhouse plants were numerous, and generally in fine condition for the season. Variegated and ornamental foliaged plants were also plentiful, as well as Ferns and Lycopods. Of Dahlias there was a great display, with numbers of German Asters, Fuchsias, Liliums, and Balsams.

The only new plant we noticed was a magnificent *Begonia*, exhibited by Messrs. Rollison, named *Rex*, having fine large ornamental leaves, the centre a deep olive-green, surrounded by a broad silvery band, again bordered with a wide edge of olive-green; the length of the leaf was about ten inches, and breadth eight. This will be a fine addition to our stoves.

Of stove and greenhouse plants in bloom, the best collection of six was shown by Mr. Hamp, gardener to J. Thorne, Esq., of South Lambeth, and contained fine specimens of *Ixora coccinea*, *Dipladenia crassinoda*, *Allamanda grandiflora*, *Cyrtoceras reflexum*, and *Erica Eweriana*. The second prize was awarded to Mr. Kaile, gardener to Lord Lovelace; among his plants were good specimens of *Dipladenia crassinoda*, *Allamandas*, the beautiful *Meyenia erecta*, *Clerodendron Kæmpferi*, and *Franciscea acuminata*. The collections of twelve stove and greenhouse plants were all good. Mr. Peed showed excellently-grown specimens of *Allamanda grandiflora*, *Vincas*, *Rondoletias*, *Pleroma elegans*, *Ericas*, and *Cyrtoceras reflexum*. Mr. Taylor had a fine plant of *Pleroma elegans* in bloom, also well-grown *Allamandas*, *Begonias*, etc. Some good groups of *Æschynanthus*, *Hoyas*, *Gardenias*, *Dipladenias*, etc., were shown by other exhibitors in this class.

In the class of variegated and fine foliaged plants there were many exhibitors; Mr. Young, of Denmark Hill, Mr. Morris, gardener to Coles Child, Esq., Mr. Oughbridge, and Mr. Rhodes, among amateurs, showed some of the best collections, while among nurserymen, Messrs. Parker and Williams, Jackson, Cutbush, and Rollinson were principal exhibitors. Of this class the following were grown in fine condition, and formed conspicuous objects:—*Pavetta Borbonica*, with large, handsome, laurel-shaped leaves, beautifully veined and mottled with deep green on a lighter ground, and having a bright scarlet midrib running up the centre; *Maranta pardina; Croton discolor*, the upper side of the foliage deep shining green, lower surface crimson; *Begonia picta*, very showy; *Tradescantia zebrina*, with broad longitudinal stripes of dark and light green and sulphur on the upper side, and purple crimson beneath: these were also in bloom, bearing several of their small white flowers. *Coleus pectinatus; Caladium pictum;* the pretty *Sonerila margaritacea; Dioscorea zebrina*, under side dull purple, upper side green, with a silvery midrib; *Hydrangea japonica variegata; Dieffenbachia variegata; Anæctochilus sp.; Solanum variegatum*, pale green, broadly edged with yellow; *Aspidastra lurida*, straw colour, with pale green stripes; *Dracena terminalis*, very ornamental; *Gesneria zebrina; Marantas*, together with many other fine plants. Mr. Cutbush showed a tray of his new *Variegated Petunia*, named *Mrs. Cutbush;* good for bedding purposes. *Achimenes* were in tolerable abundance, and among them we noticed a new hybrid, with large flowers, resembling *coccinea* in everything but size, to which this variety is much superior, it is named *Meteor*. *Japan Lilies* from Mr. Cutbush, and other exhibitors, were much admired. *Fuchsias* were chiefly the old and well-known sorts, tolerably well grown. *Scarlet Pelargoniums* were shown by Mr. Gaines, of Battersea, and Mrs. Conway, of Brompton, being massed together in large numbers, the effect was brilliant, many of the ornamental foliaged and scented ones were greatly admired, and among them were *Lady Plymouth, Prince of Orange, Rose Scented, Helen*, and others. *Cockscombs* were in limited numbers, and tolerably grown. *Balsams* were extremely fine, the blooms large and very double; they consisted chiefly of the Camellia-flowered class. *Orchids* were very limited in number, but such as were shown were good; among them was a charming specimen of *Miltonia spectabilis*, covered with its lovely blossoms, it was flowered by Mr. Keele, gardener to Dr. Butler, of Woolwich; a fine plant of *Vanda suavis, Eria leucostachya*,' and *Aerides suavissima*. A group of *Pitcher Plants* from Messrs. Parker and Williams was well grown; this firm grows the *Nepenthes* to perfection, in pots plunged in tan over a chamber in which warm air circulates, entering through a grating in the front wall, and escaping through pipes at top. *Ferns* and *Lycopods* were numerous, chiefly from Messrs. Parker and Williams, Mr. Sim and Mr. Fletcher; all were well grown.

The *Dahlias* were in great strength, there being numerous competitors from all parts of the kingdom. In the class of fifty blooms there were ten groups, the first prize was gained by Mr. Turner, Mr. Keyes obtained the second, Mr. Barnes the third, Mr. Kimberley and Mr. Sealey equal in the fourth. In the twenty-four bloom class for amateurs, the prizes were awarded, 1st, to George Holmes, Esq., Brook Lodge, Norwich; 2nd, the Rev. C. Fellowes, Shottesham; 3rd, Mr. Grant, gardener to R. Fellowes, Esq., Shottesham Park; 4th, Mr. J. C. Perry, Bromwich, near Birmingham. In this class several extra prizes were distributed. Equal prizes were given in fancy varieties to Messrs. Turner and Keynes; 2nd, Mr. Barnes; 3rd, Mr. Legg; the Rev. C. Fellowes, George Barrett, Esq., and Mr. Perry, also were exhibitors, and had fine stands. Of *Dahlias* the blooms were generally excellent, to which the late favourable weather had in some degree contributed, in addition to which the competition was great. The finest blooms were the following:—*Selfs*, Satirist, Touchstone, Lord Palmerston, Rachel Rawlings, Lady Franklin, Cherub, Grand Sultan, Colonel Windham, Lady Popham, Sir R. Whittington, Yellow Beauty, Midnight, Miss Spears, Pandora, Beauty of Slough, Omar Pacha, Lilac King, Bessie, Lollipop, Mr. Seldon, Salvator Rosa, Sir F. Bathurst, Miss Burdett Coutts, Sir C. Napier, Sir J. Franklin, Pre-eminent, Miss Caroline, Lord Bath, Admiral Dundas, Royal Scarlet, Roland, Harbinger, Perfection, Eclipse, Robert Bruce, Deutsche Zierde, Constancy, Princess, and Chance. *Fancies*, Conqueror, Fancy King, Miss Nightingale, Cleopatra, Baron Alderson, Charles Perry, Admiration, Duchess of Kent, Enchantress, Iphigenie, and Butterfly. The following were among the *new varieties*:—Queen (Keyns), creamy blush, spotted and slightly striped with crimson, rather small; Mars (Keyns), scarlet-crimson, not so good as Lord Palmerston; Cynthia (Keyns), creamy canary colour, a neat flower; King (Rawlings), nankeen brown, under side of petal purple, a nice round flower, but petals somewhat too cuppy; Mrs. Boshell, pale blush white, speckled and striped with deep crimson; Mr. Critchett (Keyns), golden amber, a nice flower; Jupiter, maroon tipped with white, somewhat flat; Venus (Rawlings), creamy blush, very good; Mrs. Church (Church), yellow, tinged with amber, a fine flower; Miss Pressly (Turner), blush, tipped with purple, small; General Havelock (Fellows), bright rosy-scarlet, a fine large flower; Marion (Fellows), blush, laced with rosy-purple; Miss Watts (Turner), white, tolerable; Mark Antony (Salter), amber, deeply striped with scarlet-crimson, very distinct and very good; Canary (Fellows), light yellow, a very great flower; Cherub (Holmes), orange-amber, good form; Goldfinder (Turner), deep golden yellow, very large, but second-rate; Flirt (Holmes), nankeen, striped with crimson, but low in the eye; Papilio (Turner), salmon, striped with rosy-crimson, a promising flower; Sir James Watts deep scarlet, very neat; Major Fellows (Grant), very fine, in the way and colour of Mr. Seldon; Village Gem (Green), white laced, with rose tips, neat but small; Invincible, brilliant amber orange, laced with scarlet, distinct in colour and of tolerable form; Marchioness of Aylesbury, blush, laced with rosy-purple, large and good; Tiger, dull red, striped with maroon, distinct in colour, but second-rate only; Mrs. Hamilton, white, laced and striped with rosy purple, small and flat; Lady de Vesci, salmon-buff, tipped with purple, tolerably good; Favourite, blush striped with purple, a loose flower; Gladstone (Keyns), bright orange-scarlet, large and good; Alice Downie, a good white; Mrs. Seacoal, bronzy orange, striped with deep crimson, flat and second-rate.

There were several trays of cut *Roses*, principally from Messrs. Epps, Francis, Mitchell, Paul, and Cutbush, and of *Asters* there were forty-five trays of twenty-four blooms, remarkable for size and good form; they attracted great admiration, especially from the ladies.

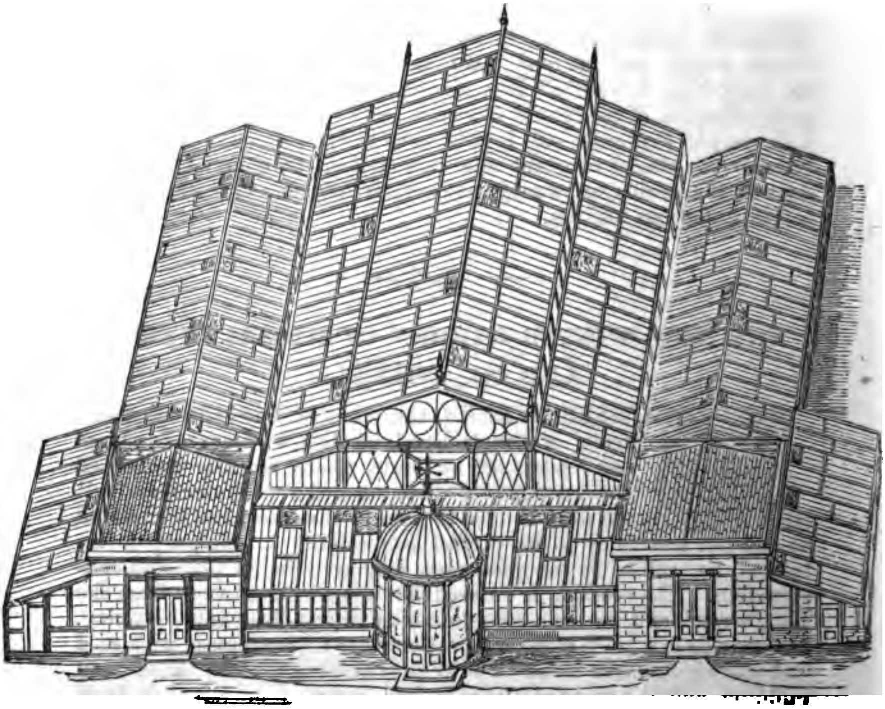
The Water Lilies, plants, and shrubs in the Crystal Palace are doing extremely well, and everything is kept in first-rate order, worthy of this splendid establishment. The *Wellingtonia gigantea* lately put up here, together with the young specimens, drawings, and photographs of it, give us an idea of its magnificence in its native forests, and is viewed with wonder by all who behold it. The grounds and beds were, notwithstanding the advanced period of the season, looking gay, with *Scarlet Geraniums, Shrubby Calceolarias, Dahlias*, pegged down, etc. It is worth a visit to the Crystal Palace were it merely to see the style in which the bedding plants are disposed; some beds of mixed *Asters*, of *Fuchsia coralina*, edged with variegated *Geraniums*, of variegated *Ageratum* very distinct, the foliage edged and striped with sulphur, contrasting well with the light-blue flowers of *Tom Thumb Geranium*, edged with variegated *Alyssum*, of variegated *Geranium*, and *yellow Calceolarias* edged with *purple Verbenas*—all looked extremely well, and had it not been for the almost constant rain, that fell on two out of the three days of the exhibition, would have greatly heightened the enjoyment of the numerous visitors.

THE NEW WINTER GARDEN OF MESSRS. WEEKS AND CO., CHELSEA.

MESSRS. WEEKS, the eminent horticultural architects, of King's Road, Chelsea, having, as some of our readers are no doubt aware, recently completed the erection of a house, termed a "Winter Garden," we were invited to inspect the same, and feel bound to add our testimony to its perfect adaptability to the purpose intended, as well as to the good taste displayed in its plan and construction. The erection is entered through a conservatory from the King's-road, and covers a space of about twenty-five yards by thirty. On one side is a large stove and on the other a greenhouse, with seed and waiting-rooms in front. The Winter Garden is a very ornamental building, and the interior space is laid out in four raised beds of considerable size, with a circular one in the centre; the latter is now (August 20th) occupied by *Japan Lilies*, with a fine specimen of *Araucaria excelsa* in the middle, and the four corner beds are filled with *Camellias, Orange trees, Azaleas, Fuchsias, Humea elegans, Agapanthas, scarlet and variegated Geraniums*, etc. The beds are each raised a foot or more above the level of the floor, the sides banked up with turf, and edged with *Lycopodium*. The spaces between the beds afford plenty of room for walking about, and the construction of the building is such as to give the whole a light, and remarkably cheerful appearance.

The Winter Garden, together with all the house in this nursery are heated by one boiler, supplying about 7000 feet of pipe, and capable of maintaining any desired amount of heat at a very low cost.

The inspection of Messrs. Weeks' Winter Garden will afford much gratification to every one interested in the progress of Horticulture, as a proof we have but to point out that it has already been visited by a great number of practical gardeners, the principal nurserymen, and many of the nobility and gentry.



Messrs. Weeks' New Winter Garden.

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Criterion of the Picotee.—The properties of form are similar to those of the Carnation; but the distinction from the Carnation is that the colour is disposed on the outer edge of the petals and radiates inwards, and the more uniform this is the better, whether it be very deeply feathered at the edge like a feathered Tulip, or an even line not wider than the thickness of the petal.

REVIEWS.

Trentham and its Gardens, with ten Illustrations on wood. London: Piper, Stephenson, and Spence, pp. 80. Price 1*s*.

THIS little work contains an historical account of Trentham, with a description of its ducal house, park, and gardens. We are sorry to see so limited an account of the latter, however, especially where there is so much room for description. In a future edition we hope to see some typographical errors corrected, especially in the names of plants.

The author states, p. 30,

> "The gardens (comprising an area of about sixty-five acres) of this princely establishment have, within the recollection of men still living, undergone a complete change, and especially within the last twenty years. Before that time they do not appear to have excelled in any particular manner the gardens of other large estates, or to have attracted more attention than is usually bestowed upon such establishments by occasional visitors."

The following is our author's description of the grounds:—

> "The Terrace Garden is composed of several raised beds of wrought stone of various forms and treatment. The centre of each of the largest is occupied by large marble vases, and the smaller ones by bronze statues, surrounded by alternate lines of the flower-of-the-day, golden chain, and other Geraniums, Verbenas, Lobelia, etc. The elegant Humea also contributes its graceful outlines to the general effect. In each windows of the lower story of the Hall is a China-covered box with a variety of Geraniums. The pavement is composed of slate, bordered by flag-stones; and a balustrade divides it from the parterre. This garden contains a selection of bronze statuary, consisting of The Wounded Fawn, Mercury, Venus, Atalanta and Hippomenes, etc. Such objects contribute a fine effect to gardens of this description, and with vases, urns, and other works of a classic order, relieve and enrich the general features of picturesque landscape.
>
> "The Private Conservatory opens to this garden. The walls are covered with trellis-work, over which cluster masses of Cobœa scandens and Passion Flower, which descending from the roof in long lines, have a very pretty effect. The borders are also covered with Camellias, Fuchsias, etc., and the ventilation is regulated by ornamental baskets with trailing plants. There are several Orange trees in tubs, and a fine specimen of the Seaforthia elegans. This house, with the corridors connected with it, contains numerous specimens of lichen and ferns. Of the latter the collection is rare, consisting of Pteris tremula, Aspidium molle, Aspidium patens, Polypoditum aureum, Davillia, decompositum, Blechnum occidentale, Blechnum corcovodense, Adiantum formosum, etc. There is a small garden between the corridor and the main wall laid out in raised beds with Geranium, Calceolaria, etc.
>
> "The Parterre is about two feet below the level of the Terrace Garden, and the steps leading from it flanked by bronze figures and antique urns. It is about eighty yards square, and divided by broad gravel walks, with stone borders, into large compartments. The inner one is a circle, laid out in small cypher beds, with gravel paths and lines of turf converging to a circular basin containing a fountain—the three graces. This series of beds are arranged and planted with flowers, to represent a peacock's tail. They are surrounded by a small band of Verbenas, of different varieties, and the basin is bordered by groups of the Humea; the effect of the sparkling water falling on this floral circle is, by comparison, very beautiful. There are four large compartments, laid out in numerous beds, the centre being a fine and graceful scroll; and each division is,

in its entire arrangement, a counterpart of the other. The flowers used in their decoration consists principally of Geraniums, Trentham rosy-scarlet, flower-of-the-day, golden chain and other varieties; Verbenas, Lobelias, Roses, Calceolaria, Saponaria, Calabrica, Forget-me-not, Petunias, etc. Each plot is further ornamented with Cypress and Irish Yew, and in the centre of each, on a granite pedestal, stands a fine antique white marble vase. The divisions between the beds were formerly composed of gravel, but a much more effective and refreshing contrast has lately been ensured by laying them down with turf. The outer borders, are of a chain pattern, formed of box edgings laid down with variegated gravel. The small beds, from which rise at regular intervals, a Cypress, are planted with flowers of a similar character to the other parts of the garden. The east and west sides are bounded by a low wall, the north and south by balustrades, and in the four angles are the Conservatory, Dining-room, and two Italian temples, containing mythological statues. The whole of the balustrades are ornamented by lines of vases, with flowers, chiefly Geraniums. Wherever a recess, or a point favourable for floral display, or the introduction of objects of art, presents itself, it is not neglected; but there is no wholesale grouping, no gaudy pretension, to be seen. If the eye rests upon any individual object, or ranges over the whole area, it is struck with nothing repulsive to good taste; everywhere it is harmonious, glowing, and beautiful. In the winter time some of the beds are planted with dwarf evergreens, such as Rhododendrons, Ericas, Menziesias, etc.; and when the first genial beams of a spring morning fall across it—sometimes even through a thick crust of snow, every bed welcomes its hopeful ray with the first pure offerings of the floral world—the Snowdrop and Crocus.

" Between the Parterre and the Park are masses of shrubbery, consisting of Holly, various of the Conifera family, Rhododendrons of several colours, Azalea, Thorns, etc.; and the Hollies and Thorns, with others, are in many instances covered with Honeysuckle, wild Roses, and Clematis, which impart a very fine and pretty effect to the different groups. Numerous grassy glades run here and there, and form a succession of very interesting walks, the borders being planted with heaths, and enlivened by a great variety of native flowers. The terrace fronting the private apartments is reached by some ranges of steps on which stand several ornamental baskets with flowers, and it is further embellished by two large antique bronze vases. In front of the orangery ornamented by an iron gilt railing, is another garden, with a Cupid fountain in the centre, and planted in a simple, but very effective manner. Stretching towards the lake are some beautiful glades beneath large trees, in some instances crossed by a serpentine border of Forget-me-not, intended to represent a rivulet. This happy idea—so simple, yet so natural-looking—is due to the Duchess of Sutherland, and was first realized some years ago at Lilleshall, in Shropshire. The surface of these glades is broken here and there by gentle undulations, and intersected by beds of the simple Periwinkle, from which rise some fine specimens of the Araucaria imbricata. There is also a beautiful tree, the Magnolia tripetala, and some thorns decked in the borrowed plumes of wild Roses. Some ancient forest trees contribute to the interest of the scene.

"The steps leading from the Parterre to the Italian Gardens are very fine; 'their form is bow-like, the edge of stone, and the space between each, which gradually descends and is composed of gravel, varies from five to seven feet. They are six in number, and have a stately appearance.' The Italian Gardens are universally admired for their descriptive beauty, and the excellent arrangement of the materials of which they are composed. They occupy about ten acres, and are divided into large compartments by broad gravel walks. The central one is about 250 yards long, and 14 wide; and down its entire length and the parallel walks on each side of it range well-kept lines of Portugal Laurel in large tubs, and trained so as to represent Orange trees. There are also in the centre of each of the six compartments fountains of a simple character, the large ones throwing a single jet of water upwards of twenty-five feet. The excavations are well kept, the turf being of a mossy and rich character.

" The borders of each of the beds, which are planted with the greatest regard to harmony both in height and colour, are formed of yew, barberry, dwarf oak, etc. The walks are kept free from weeds, and made solid and clear-looking by being well dressed each spring with boiling water and salt—a machine invented by Mr. Fleming being used for that purpose. The whole of the turf, where it is possible to be got at, is kept in order by a mowing-machine drawn by one horse, which cuts and collects the grass at the same time. It is a capital instrument, and of the greatest utility where there is such a large surface of turf to be mown. The east and west sides of the gardens are raised into a terrace, on which stand several Maltese vases and polished granite seats. Down the trellis-walk on the east are placed on terms allegorical busts of the four seasons; and between them a range of ornamented baskets surmounted by a zinc band painted green, which forms a capital contrast to the white baskets and the foliage of the flower-of-the-day Geranium with which they are decorated, and is further serviceable by allowing more soil to the roots. The beds running tbe entire length of the trellis-walk, are planted with gay, flowering plants of the usual order, and presents a glowing and rich appearance against the foliage of the climbers that rise from amongst them.

"The trellis-walk was erected in the year 1843. 'It is composed of iron, 140 yards long and about 16 feet high, over which clusters of Roses, Woodbine, Clematis, Ivy, the fine foliage of the Aristolochia sipho, and numerous other flowering plants and creepers luxuriate. Standing at the southern end, the view from it is most charming, and well adapted for artistic treatment, embracing portions of the park, wood, lake, and islands, with the bay and its groups of beech and horse-chesnut. Each end of the walk contains three entrances, and is raised much higher than the other part; and down each side are oval windows.'

"'At the extremity of the central walk of the Italian Gardens, abutting on the lake, and on a stone pedestal surrounded by four smaller ones, at present unoccupied, stands a remarkably fine colossal bronze cast of Perseus and Medusa. This is the only bronze copy of the original extant, and as a work of art its value is great. The work displays great power and truthfulness of expression. Perseus, flushed with triumph, is represented holding the head of Medusa by its snaky locks the moment after decapitation, and surveying in his shield the reflection of that fatal face on which he dared not rest his naked eye.'"

The Common Objects of the Sea Shore. By the Rev. J. G. Wood, M.A., F.L.S., etc., 12mo, pp. 132. London: Routledge & Co. Price 1*s.* plain, 3*s.* 6*d.* coloured.

ANOTHER neat little work on marine subjects and aquariums has been forwarded to us for review. It is simply a popular account of "The Common Objects of the Sea Shore," and restricted to those objects which every visitor to the sea-side is sure to find on every coast. The book is written in a very plain and entertaining style, and its illustrations (by Mr. Sowerby) are very truthful.

Visitors to the sea-side, who are fond of sea-weeds and the natural history of the domains of salt water, should buy this little work as a coast companion, and they will be certain of reaping a harvest of solid information that will repay them a hundredfold for the outlay. Aquarians should also add the work to their library, by all means. Having but recently noticed other works of this class, we do not feel at liberty to give extracts as a specimen of the work, lest we should be taking up too large a space with this subject, however interesting it may be.

Four Lectures on Farmyard Manure, Artificial Manures, Barren and Fertile Soils, etc. By Dr. AUGUSTUS VOELCKER, F.C.S., etc., etc. London: Ridgway, pp. 72. Price 1*s.* 6*d.*

UNDER the above title we have much valuable information on a subject of the greatest importance—the chemistry of soils and manures, from the pen of one of the most able agricultural chemists and analysists of our day;—a work that should be in the hands of every person interested in the subject, and gardeners are especially so. The book will well repay perusal, and we regret we have not space to transfer some of its more important remarks to our pages.

NOTES ON NEW AND SELECT PLANTS.

VIOLA PEDUNCULATA. *Nat. Ord. Violarieæ.*—Mr. Douglas, the eminent though ill-fated botanical collector, was the first to discover this pretty violet, in California, only a short period before the occurrence of the fatal accident which led to his death in the Sandwich Islands. It has subsequently been re-discovered by Mr. Lobb, who forwarded seeds, and dried specimens, to Messrs. Veitch; plants were shown by the latter at the Horticultural Society's late exhibition, and excited marked interest. It requires the protection of a frame, and flowers in May; the blossoms are a rich golden yellow, from an inch to an inch and a half across; the three lower petals marked with small red streaks around the eye; the upper ones have a large blotch of the same tint at the *back* of the petals, the front surface being of an uniform golden tint; the foot-stalks are from six to ten inches long, and the plant rather compact in habit. (*Bot. Mag.*, 5004.)

104. RHODODENDRON CALOPHYLLUM. Nat. Ord. *Ericaceæ.*—The heads of bloom are close, and the flowers white, with rather pointed petals; this species is not remarkable for the size of its flowers, and possesses the habit of sending out shoots from the corymbs of blossoms, which detracts considerably from its other good qualities. It is a native of Bhotan, whence seeds were transmitted by Mr. Booth, to Mr. Nuttall, of Nutgrove, Rainhill, with whom, as also at Kew, it flowered in May of the present year. (*Bot. Mag.*, 5002.)

105. DENDROBIUM NOBILE; *var.* PALLIDIFLORUM. Nat. Ord. *Orchidaceæ.*—A pale variety of the well-known, handsome, *D. nobile*, to which the present is very inferior, being destitute of the rich spot on the labellum in the species alluded to. In size, and some other particulars, the flowers closely resemble each other. (*Bot. Mag.*, 5003.)

106. AZALEA OCCIDENTALIS. Nat. Ord. *Ericaceæ.*—The present is the only one of this genus that has, up to the present time, been detected westwards of the Rocky Mountains in North America, and s an inhabitant of California; dried specimens from Messrs. Douglas nd Hartweg were received some years ago, and, in the absence of iving plants, it was considered to be identical with *A. calendulacea*, rom which, however, it is now seen to differ, more especially in

colour. The blossoms are white, with a yellowish streak in the upper petals, and a few tinges of red on their outer surface; in the heads of bloom, and form of flowers, it bears a resemblance to the Ghent Azaleas. Messrs. Veitch possess plants that were raised from seed sent by Mr. Wm. Lobb, which have bloomed in their nursery. (*Bot. Mag.*, 5005.)

107. **Agave densiflora.** Nat. Ord. *Amaryllideæ.*—Two unnamed Agaves have bloomed during the present year in the succulent house at Kew, but when and from whence received is uncertain, but supposed to be from Mexico. One of these has been named by Sir Wm. Hooker *A. densiflora*, and does not appear to have been described before by any author. The scape bearing the flowers grows six feet high, and is an inch thick, surmounted with a dense head of blossoms, pale green, changing to yellow, furnished with stamens and pistils of a rich purple colour, the whole making a singular appearance; the leaves are large, thick, and fleshy, slightly spinose at the margin, and of a deep green, but not glaucous. (*Bot. Mag.*, 5006.)

108. **Grevillea alpestris.** Nat. Ord. *Proteaceæ.*—From the mountainous districts of South Australia, where it grows as a large shrub; with us it is a plant of small size, but bears its pretty blossoms of red and yellow in great profusion. While in its native localities it flowers throughout the year. It requires greenhouse cultivation, and is worthy a place in every collection. (*Bot. Mag.*, 5007.)

NEW AND SELECT GARDEN HYBRIDS.

HOLLYHOCK, **Queen of the Whites** (Paul's)—One of the finest whites we ever saw. The flower is perfect in form, of extra size, and the spikes closely set with blooms, long and broad. This is really a white Hollyhock, being entirely free from all stains of green or sulphur. Messrs. Paul, of Cheshunt, have raised some flowers of first-rate merit, and this appears to be equal, or superior to any.

73. H. **Primrose Perfection** (Paul's).—Colour delicate primrose-yellow; form excellent, and spikes fine. A very distinct show flower.

74. H. **Avalanche** (Paul's).—This is another pure white flower, but the petals are not sufficiently smooth enough to make it a first-class bloom for exhibition, although it is a fine variety for the border, bearing immense spikes of bloom.

75. H. **Village Maid** (Paul's).—Raised from "Beauty of Cheshunt," which it resembles in size and form; colour crimson-peach. An excellent show flower.

76. H. **Nebulum** (Paul's).—A useful smooth flower; chocolate, or purple blush; veined.

77. **Picotee, Ada Mary** (Smith's).—Mr. W. Smith, jun., of

Alpine Cottage, Darlington, has originated some first-class Picotees, of which this is one. Ada Mary is a light-edged red; the petals smooth, and of great substance; the marking well confined to the margin; the white is as pure as Marris's Prince of Wales, and without a single speck; the marginal colour crimson-red.

78. P. LAURETTA (Smith's).—A medium edged red, similar to Mrs. Norman; the petals very smooth, of fine substance, very pure, and free from spots; the colour well confined to the margin; the first blooms are sufficiently heavy to compete in the Heavy Red class, the laterals somewhat lighter in the marking. Lauretta is exceedingly constant, and of unexceptional habit.

80. P. EVA (Smith's). This is a seedling from Venus, crossed with Mrs. Barnard. Like the former, it is a delicate sulphur when it first opens, but soon becomes very pure; the back petals large and deep. Eva is a light-edged rose, of good substance, smooth, and, like each of the above, the colour is well confined to the margin, and in tint resembles Mrs. Barnard. Ada Mary took first and second prizes in class showing at York, when only two blooms were staged, August 5th. Lauretta took first prize at Manchester, August 19th, as the best light red; and also received a first-class certificate. Eva was placed first at Manchester, beating Mrs. Barnard, Mrs. Turner, and all the other light roses.

◆

FLORICULTURAL OPERATIONS FOR OCTOBER.

IN THE FLOWER GARDEN.

GENERAL OPERATIONS.—*Border Plants*, cut down or pull up such as are decayed; protect such as are rather tender or half-hardy, with leaves or fern. *Composts*, as last month, turn them over occasionally in frosty weather. *Cuttings*, plant. *Edgings* trim, and lay down new. *Evergreens*, plant and dress. *Flower-beds and Borders*, dig over and dress, being careful to avoid injury to bulbs and other plants with decayed foliage. *Grass*, mow and roll; lay down turf. *Hedges*, trim. *Leaves*, gather, and sweep from walks and lawns; store up for compost. *Planting*, this is an excellent time for. *Prune*, generally. *Seeds*, gather as they ripen. *Shelter* all tender plants or shrubs on the first indication of frost. *Sticks*, place to bulbs and plants whose foliage is decayed. *Trench* all vacant ground.

CULTURAL DEPARTMENT.—*Alpines and Rock-plants*, towards the middle of the month, according to the weather, the whole should undergo a good cleansing, cut off decayed leaves, and stir the soil about them. *Anemones*, this is decidedly the best time for planting, the soil should be friable loam, well intermixed with coarse sand, and leaf mould; the bed should be eighteen inches deep, and in a sheltered part of the garden; it should be protected from rains by a covering over it, to keep it tolerably dry for planting. Put in the tubers in rows six inches apart, and cover them two inches with the soil. When planted, cover the bed with a stratum of leaves or fern, as a protection from frost; remove it when the plants appear. *Annuals*, pull up those that have gone out of bloom. *Biennials and Perennials*, cut down the flower stems of such as are out of bloom, unless seed be wanted; those that are rather tender should have a protection of leaves. *Bouvardias*, as soon as frost appears take up with balls of earth to the roots, and pot them. *Bulbs*, plant out for a succession towards the close of the month. *Chrysanthemums*, take up such as are for in-door bloom, or in pots; they may be placed in a frame, and from thence transferred to the Greenhouse (see Greenhouse department). *Dahlias*, save seed from the best varieties only. *Fuchsias*, plants established in beds should be protected with a stratum of dry leaves or old tanners' bark to the depth of six inches, which should also be covered with a little soil to prevent being scattered by wind. *Guernsey Lilies*, in beds, should have a thick covering of dry leaves for a protection. *Hollyhocks*, collect seed as it ripens, and cut down stems as last month. If the new shoots of plants cut down last month be strong enough, it is a good time to put in cuttings. Towards the close of the month put a covering of dry leaves round the plants in the border, a few inches thick, and over these a layer of road sand, forming a slope round the plants, so that too much moisture may not get to the roots during winter. The general stock of struck plants in pots out of doors, should be taken into the frame towards the close of the month. *Honeysuckles and Jasmines, etc.*, prune and train, also dig over the ground around the roots. *Hyacinths*, prepare the beds, taking out the earth to the depth of two feet, and filling up with a mixture of half sandy loam, and half rich rotten dung well incorporated, to which should be added a handful of salt. In ten days, when the bed has settled, plant the bulbs four inches deep, and eight inches asunder. *Lilium lancifolium*, when the soil has become dry shake out the bulbs, and remove the dead stem, twisting it gently out. Part such bulbs as require it, and cut away old roots. Repot in the same compost as recommended in March, and plunge in ashes under a south wall. *Lily of the Valley*, divide and replant. *Pentstemon speciosum*, last year's plants may be put out in the border, being protected in wet weather by a hand-glass. *Pinks*, make beds and put in plants; the soil should be composed of fresh loam, with an equal proportion of cow-dung two years old; the beds should be raised, and convex in the middle to throw off excess of wet. *Polyanthuses*, those in the open ground should have a hollow tile placed over them to protect them; those in pots plunged in a north border must be preserved from heavy rains by mats over hoops, or by sashes. *Ranunculuses*, plant for early spring. *Roses* that have been budded should have the branches of the stock shortened to eight or ten inches long, by the end of the month, as soon as the sap has "gone down." *Salvia patens*, cut them down and take up on a dry day, shake off the soil and let them lay for a few days in a dry shed, next pack them closely in a rather deep box, and fill up the space with peat, in layers, covering the whole with rough peat over the top. They may be preserved through the winter in a dry cellar or other convenient place. *Trees and Shrubs*, this is a good time to plant or remove them. *Tulips*, sow seed in beds prepared for its reception, it should be protected from frost by layers of leaves or mats; when carefully attended to, the plants will appear above ground by the middle of February. Planting may commence.

IN THE GREENHOUSE, COLD PIT, AND FRAME.

General Operations.—*Air* must be admitted on all favourable occasions in the day time, more sparingly at night. *Clean* the pots, and *top-dress* all plants as they are introduced into the pits and houses. *Plants* of tender habit should generally be taken into their winter quarters this month, the hardier sorts may be deferred till about the end of the period. *Water* more sparingly, except in the case of plants whose blooming season is coming on, as *Chrysanthemums* and *early Camellias*. Keep all erections neat and clean; and have protecting materials at hand in case of frost.

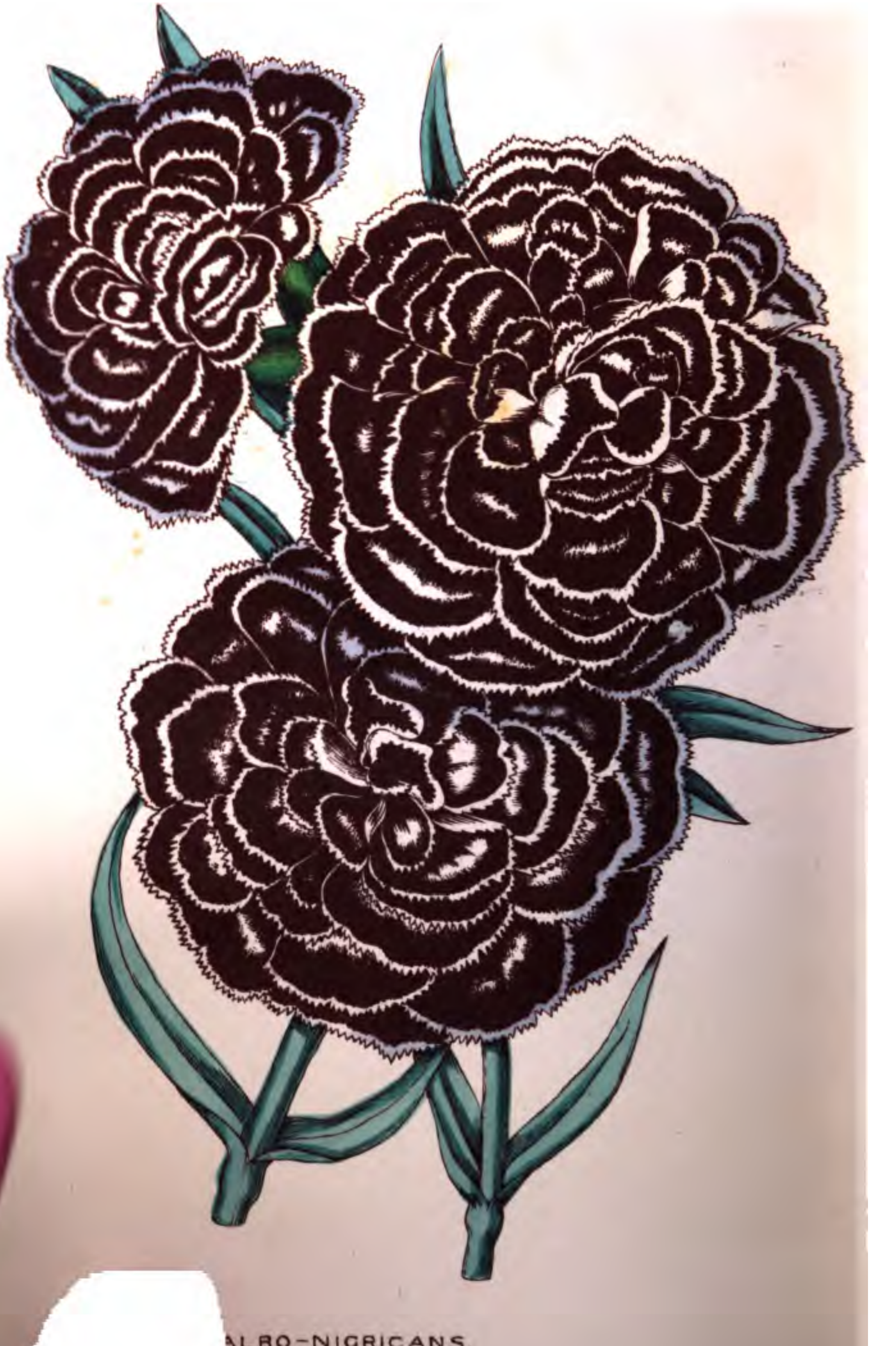
Cultural Department in the Cold Pit and Frame.—*Alpines*, keep clear of weeds, and stir up the surface soil; a moderate supply of water should be given, the best time is early in the morning, that it may drain away before night comes on. *Auriculas*, place in their winter quarters on the first approach of unfavourable weather; remove dead leaves and keep clean; if a frame be not prepared for their reception, they may be placed in a shed facing the south, and well protected from driving rains or wind; here they may remain until the end of November. They will not require a mat in front at night, since it matters not how cold the weather be, if the plants are kept dry. Water sparingly every four or five days. *Campanula pyrimidalis*, as soon as out of flower, turn the plants out of pot, and cut the roots into as many pieces as you desire to have plants; place five or six pieces into a forty-eight sized pot, half filled

Properties of a Good Holyhock.—There are three essential qualities in a good flower, which may be enumerated thus:—1st. The diameter across the centre should not be less than three inches, and the outline not less than half a globe; the florets of which it is composed should be thick, dense, whole on the edges, and entirely free from fringe or serrature. 2nd. The principal or guard petals should not extend more than from a quarter to half an inch beyond the outline of the centre: they should be thick and flat, forming a circle, and entirely free from notch or serrature. 3rd. Size is a distinct property; when equal in other respects, the larger the better.—*Mr. Downie.* The definition of a good flower, in my opinion, is as follows:—1st. It is indispensably necessary that the petals be of good substance, the edges perfectly smooth and even. 2nd. The florets occupying the centre must be compact, closely arranged, rising in the middle so as to make a half-globular form, with a stiff guard-petal extending about half an inch, or rather more, from the centre florets, 3rd. The arrangement of the flowers on the stem or spike ought not to be too thick or too thin.—*Mr. W. Chater.* The essential qualifications of a good Hollyhoch are:—1st. Shape; this should be something less than half a ball. The flowers should be free from pockets, the anthers not seen. The petals should be free from indentation or notch. 2nd. Size; the ball should be from one and a quarter to two and a half inches high, according to its diameter: the greater the diameter the greater should be the height. The diameter of the ball should never be less than two inches and a half. The guard-petals should extend from three-eighths to five-eighths of an inch beyond the ball; the larger the ball the greater should be the guard-petal. What we aim at is proportion. The different parts of the flower should bear such relation to each other that the whole may be uniform, and in nothing offend. 3rd. Substance; the petals should be thick and smooth. 4th. Spike; this should never exceed seven feet. The longer the footstalks, in moderation, the better, as the bulk of the spike is in proportion to their length, and the greater the bulk the finer the object.—*Mr. Parsons,* in "An Hour with the Hollyhock."

Tigridia Pavonia and Conchiflora.—The difficulty so generally experienced in keeping these bulbs through the winter is, I believe, caused by their being taken up too soon, as they do not fully ripen in our climate before frost sets in; the most advisable plan, and one that I have proved successful, is to allow the bulbs to remain in the ground until the end of January, covering them with dry leaves, or litter so as to keep the frost from them. At this period they are taken up and potted, placed in gentle heat until the leaves have made some progress: after this they are transferred to the cool greenhouse or pit, until the early frosts are past, when they are planted out in the border with entire balls, being very sensitive to injury to their small roots; they should not be covered with more than an inch of soil. In this way there will be few plants lost.—*C.M.*

Botanical Mission to the Chinese Seas.—It having been considered by Sir Wm. Hooker a good opportunity for making botanical researches in the little known districts of the Chinese Seas, he has obtained Government consent and aid in forwarding a collector to accompany the steam yacht "Emperor," designed as a present to the Emperor of Japan, which it is considered will afford an excellent opportunity for obtaining specimens of many fine plants from that imperfectly explored country. After a short stay in Japan, Mr. Wilford (of the herbarium department, Kew), will be transferred to the "Actæon," now engaged in a survey of the coast of Tartary, and will botanise the districts lying near the mouth of the Amur, and in Corea. Mr. Wilford is expected to remain out three years on this most interesting exhibition.

Hyacinths and Winter bulbs.—These can be grown in baskets of moss with excellent effect. The baskets may be varied in shape and size, painted green, or stained and varnished, according to the fancy of the amateur; they must have the lower parts impervious to water, either by being made of metal, or by having a china dish put in of the right size. This must be filled with sand, covered with a layer of moss, on which the bulbs are to be placed. If rooted before put in the plants will be more sure of a regular advancement. The whole should be covered with the best specimens of fresh green moss that can be procured, and a moderate degree of moisture kept up in the whole mass. If the colours are properly varied, these moss-baskets will prove beautiful objects.—*W. P.*



ALBO-NIGRICANS.

The Floricultural Cabinet.

NOVEMBER, 1857.

ILLUSTRATION.

BEDDING-PINK—ALBO-NIGRICANS.

THE Pink has always been a favourite with the florist, and deservedly so; with the poets also, who gave it the name Διος αντθος, *Dios anthos*, "Divine flower," from which circumstance we have the generic name *Dianthus*. The French name for the Pink is *Œillet*, signifying a little eye; and the English name Pink is nothing more than the Dutch word *pink*, signifying also *an eye*, the latter nation having been some time ago famous for their cultivation of this sweet flower. If we go back to the days of Queen Elizabeth, we learn from Gerarde that the Pink was even then cultivated in its double state; and this is the first writer who calls it by the name of "Pink, or Wild Gillyflower." Some years later, Parkinson, in his "Paradisus," enumerates twenty-five varieties in "a list of such flowers as being cultivated in this country for a great length of period, are therefore considered as English flowers;" and tells us also how they were great favourites in the time of his unhappy master, Charles the First. London and Wise were the first English nurserymen that we know of who directed special attention to the improvement of the Pink, and in their "Retired Gardener," 1706, have devoted more space to the cultivation of this plant than to any other flower.

Albo-nigricans is a bedding variety, introduced to notice by M. Verschaffelt, of Ghent, who obtained the stock from M. de Taillasson, President of the Horticultural Society of Nancy. For bedding purposes it is a decided acquisition, and when more generally known will be extensively used; the flowers are of large size, and remarkably full; the colour a deep rich purple black, and the white margin clear and broad; it is an abundant bloomer, fragrant, and the pods not much given to splitting.

REMARKS ON POPULAR FLOWERS AND OLD GARDEN FAVOURITES.

BY MR. EDWARD SHEPPARD.

No. II.—The Honeysuckle.

"So doth the Woodbine, sweet Honeysuckle gently entwist."
Midsummer Night's Dream.

TO describe so well-known a plant as our common Honeysuckle, *Caprifolium periclymenum*, were superfluous—every one is acquainted with the Woodbine, that emblem of sweetness of disposition and affection,—an emblem of suavity through its delicious fragrance, and of affection by its clasping and embracing shoots. Wherever fixed these retain a firm hold, and although incapable of affording support themselves, they frequently ornament what would otherwise be an unsightly object.

The Honeysuckle is styled "the poor man's flower," and rightly too, for we frequently observe it clustering over the rustic porch and occupying a small portion of the soil in the humble gardens of the poor man, and perhaps there are few hardy climbing shrubs more adapted to the purpose, or that can at least render half so agreeable a fragrance.

"By rustic seat and garden bower,
There's not a leaf, or shrub, or flower,
Blossom or bush so sweet as thee,
Lowly but fragrant Honey-tree.
By stately halls we find thee not,
But find thee near the lowly cot,
Or latticed porch—by humble door
Thou leanest with thy honied store.
Tree of the cottage and the poor!
Can palace of the rich have more?
No! sweet content as seldom dwells,
In palaces as lowly cells."

The Honeysuckle is a great favourite with the poets, and many pages might be filled with quotations, exhibiting it in all its numerous aspects and situations. As a climber it is represented entwining the stems and trunks of almost every tree that endures our climate: Barry Cornwall has chosen the poplar as its support.

"———— the poplar there
Shoots up its spire, and shakes its leaves
Fantastical—while round its slender base
Rambles the sweet-breathed Woodbine."

In another place the cypress is chosen.

"And there the frail perfuming Woodbine strayed,
Winding its slight arms round the cypress bough."

Churchill represents it as gracing the elm.

> "The woodbine, who the elm in marriage meets,
> And brings her dowry in surrounding sweets."

As a covering for "herbers" or arbours, our old poets frequently use this plant; and in the olden time it appears to have been the only sweet-scented climber, excepting perhaps the Rose and Jasmine, known to them. Ben Jonson makes a pretty picture of it with a mixture of other climbers; in the "Vision of Delight," he says—

> "———— Behold
> How the blue bind-weed doth itself infold
> With Honeysuckle, and both these entwine
> Themselves with bryony and jessamine,
> To cast a kind and odoriferous shade."

In its native wildness also they have commemorated the "Woodbine," one, our "Prince of Poets," tells us—

> "I know a bank whereon the wild thyme blows,
> Where oxlip, and the nodding violet grows;
> O'ercanopied with luscious Woodbine,
> With sweet musk-roses, and with eglantine."

Of *Caprifoliums* there are a great variety of species, inhabitants of various regions, embracing a diversity of climate, from India to Hudson's Bay, from the torrid almost to the arctic zone. The prevailing colour of their blossoms is yellow, passing into shades of orange and red; one or two are white, pink, and even crimson. The allied genus *Lonicera* also embraces several species, very similar in colours and blossom; all grow freely on any common soil, and cuttings taken off early in autumn will root with facility, which affords us an easy means of increasing stock whereby to decorate our grounds or ornament the rustic porch. Small gardens should have plenty of such things as Honeysuckles and other climbing shrubs, and where rustic arches, bowers, fences, and other means are afforded for the plants to run over they conspire to make an enchanting scene even in gardens of very limited dimensions.

CAMELLIA BUDS NOT SETTING.

BY MR. JAMES STEWART, GARDENER, WITCHINGHAM HALL, NORFOLK.

COMPLAINTS, as it is well known, are frequently made about Camellias losing their buds, and of buds not setting, leading to much disappointment, especially to the amateur. As a grower on a small scale, and with little room for properly cultivating this magnificent plant, I yet manage to have my plants in flower from the end of October to the close of April. The treatment I pursue may, perhaps, be detailed to the advantage of others less successful, and is as follows:—In the first place, the present is the season of the year in which I prefer to shift my plants, as I am of opinion the Camellia makes more root in the winter than during any other period of the year—another reason that I would adduce in support of this treatment is, that when the plant comes into flower it has the strength of the unexhausted soil to work in. At this period, (October) therefore, I shift the plants, and place them in their winter quarters, which in my case are their flowering quarters also, namely, a common greenhouse; here they remain until they have done blooming. All the winter I water the plants but sparingly till about the commencement of February, when, as the days get longer and the sun has increased power, I give more water, and continue to give a rather liberal supply until flowering time is past, after which I place them in a vinery, where the temperature is maintained from fifty-five to sixty degrees, and give water daily, whether they appear dry or not, so as to keep the soil damp both at the bottom and at the surface until the plants have made their wood and are showing buds, when I withdraw the water a little until they have set their flower-buds about the size of peas; then I place them under a north wall, out of doors, still attending carefully to watering in moderation for three weeks or a month. After this they should not have much at a time, nor so frequently, or the plants would be induced to start again and make a second growth, one of the causes of losing a great number of flower-buds.

The compost I prefer to pot in is made up of three parts good sandy loam, one part peat soil, and one part soot; this mixture will be found to preserve the foliage of that dark green hue that is one of the chief beauties of a well-grown Camellia.

The foregoing remarks are chiefly intended for those who cultivate the Camellia on a limited scale, and not for such as have a house devoted to the sole cultivation of this noble plant. Should you, Mr. Editor, afford them space in your excellent periodical, they may prove of service, and at no distant time I purpose forwarding for insertion a few additional observations.

CAPE PELARGONIUMS.

BY CLERICUS.

FOR some years these pretty plants were assiduously cultivated, and new varieties diligently sought after;—collectors were sent out from some of our own nurseries to explore the districts of the Cape Colony for Pelargoniums and Heaths. Mr. Lee's collectors were inently successful in the introduction of numbers; others were great cultivators of them, and among these may be specially named, Messrs. Sweet and Colville; the latter gentleman was the originator of a large collection. After a time the cultivation of Cape Pelargoniums in a great measure ceased, and many species were all but lost altogether.

Within the past few years attention has been re-directed to this interesting tribe, and their culture has again become popular. When we behold a good collection, in nice health, and well managed, we may justly feel surprised that they were ever treated with indifference, but such is the lot of more plants than one. When first made known, Cape Pelargoniums were grown in a very poor way; it was usual to see them weakly, straggling, or stunted specimens; but the science of the present day has reared nobler examples, and instead of a plant that would be considered almost a disgrace to an establishment of our time, we find them well grown, healthy, compact bushes, bearing a profusion of bloom. I have succeeded in making a tolerably good collection myself, and have grown them with success. Some of the fine species figured by Mr. Sweet in his "*Geraniaceæ*," are, I fear, lost, and we may have to wait a considerable time before they are re-introduced. Nevertheless I have gathered together a very interesting selection, and am always ready to add to the number. Before saying anything of my treatment, it may be as well to mention the names of such as I grow, which comprises the following:—

Anemonefolium.
Ardens.
——— superbum.
Bicolor roseum.
——— major.
Bipinnatifidum.
Blandfordianum.
Campylia elegans.
Comptonium roseum.
Elegans.
——— superbum.
Erectum.
Echinatum album.
——— purpureum.
Elatum.
Flexuosum.
Formosissimum.
Fulgidum.
Glaucifolium.
Glaucum.
Holosericum,
Jenkinsoni.
Phymanthus tricolor.
Pinnatifidum.
Quinquevulnerum.
Reniforme.
Sanguineum.
Selectum.
Semperflorens.
Ternatum.
Tricolor major.

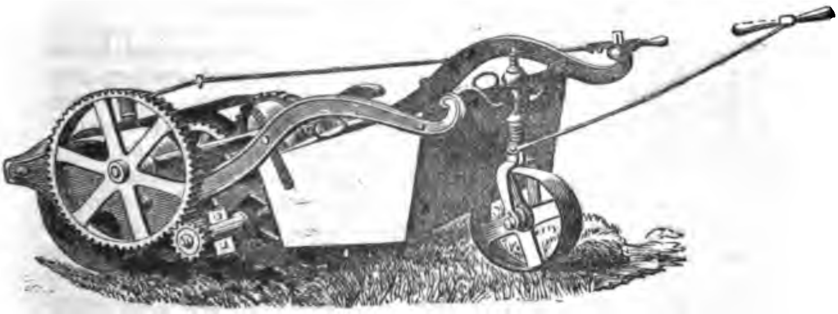
The compost I use is made up as follows:—One part turfy-loam and two parts peat soil, mixed with a small proportion of cow-dung from an old heap, thoroughly decomposed, resembling friable black soil, and a similar quantity of silver sand. For drainage (which should be open and free), I use lumps of charcoal mixed with small crocks, and when the specimens are shifted into large sizes, I mix a little of the draining material with the compost also, in order to make it more open. Commencing with the period when the plants have done blooming, my treatment is as follows:—I immediately diminish the quantity of water afforded them, but gradually, rest being essential to their blooming well next season; indeed at all times caution is necessary in administering this element, a large or too frequent supply being injurious, even if the pots are ever so well drained, as the roots being small and tender are not able to endure it, and in such a case the plants assume a sickly appearance. As they begin to grow, I tie them out neatly and regularly, without using more sticks than are absolutely required, too many supports not only detract from the beauty of the plants but do positive injury to the fibres of the root. Those plants that require it may be cut down with as much safety as any other Pelargoniums, and then are benefitted by being placed in a little heat. As the plants progress the syringe may be used in the evening, to give them a light sprinkle over the foliage. Green fly is a great pest to this tribe; as soon as one insect is perceived, fumigate them immediately with tobacco, and keep a close watch, or the leaves will be speedily discoloured and the plants injured. Propagation is readily effected by cuttings, selecting good strong shoots for this purpose after the bloom has gone over. Insert each cutting in thumb pots, using finely sifted peat and plenty of silver sand; cover with bell glasses and plunge them in bottom heat, where they will soon root well, and make nice little plants; give them air, however, or there is great liability to damping off, and as soon as they have made roots remove the glasses altogether.

Should these remarks be instrumental in promoting a more extended cultivation of Cape Pelargoniums, I shall be gratified; in every way this tribe is well deserving of the little trouble required in their management.

RECENT IMPROVEMENTS IN HORTICULTURAL APPARATUS, IMPLEMENTS, AND MANUFACTURES.

(*Continued from page* 273.)

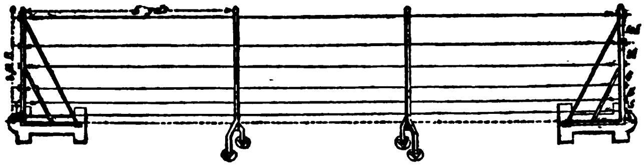
SEVERAL new forms of Hand Mowing Machines for mowing lawns, verges, etc., have been put forth, all possessing merit in some one or more points, but the best and most effective we have seen is certainly that of Messrs. Shanks, of which the annexed figure is a repretation. It has a contrivance for regulating the length of the in a few seconds by merely turning a small screw, and being of ple construction is not liable to get out of order, while the plate adjusted as to prevent its tearing up the turf, a defect that frequently been complained of in other Grass Mowing Machines. may be worked with ease by one person, and cuts and rolls very enly at the same time. We were much pleased with this implement, and have no doubt Messrs. Shanks will have a large sale for their excellent invention.



Shanks' Hand Mowing Machine.

Fabrics for shading have been produced by two or three manufacturers; we have made trial of Shaw's Tiffany and Brown's Floral Shading, which have a close resemblance, the former appears to answer the purpose very well; for the latter we are not able to speak so satisfactorily at present; the texture of the Floral Shading is light, semi-transparent, and serves to admit a subdued light and protection from the scorching solar rays.

Messrs. Gidney and Son have produced a very excellent description of wire fence, combining lightness with strength, as well as ease in setting up. It is very portable also, and may be packed in bundles for convenience of carriage. One of its chief recommendations, however, consists in its requiring but two straining standards, one at each end, however long the fence may be; while at the curves or angles of any piece of ground to be fenced off there are stronger uprights or angle standards, or trees may be made to serve instead, when they happen to stand conveniently for the purpose, thereby saving expense, and without injury to the timber. The wires can be had placed at any given intervals, so as to exclude larger or smaller intruders, and the prices are very moderate; so much so, that we believe this description of fence will shortly become as common (or even more so) as any other metal fence of the kind.



Improved Strained Wire Fence.

(To be continued).

THE EPACRIS.

BY A NOBLEMAN'S FLOWER GARDENER.

MANY countries possess a flora characterised by the presence of plants which are found nowhere else, and therefore peculiar to that region. It is a curious speculation to inquire into the "reason why," but one also into which it is unnecessary for me to enter now, more especially as the solution of the question has puzzled wiser heads than mine, and an allusion to it might here be considered out of place, were I not reminded of it by the fact that the Epacris is a plant found indigenous only in Australia, and its appendage, Van Dieman's Land. When first discovered it was considered to be a kind of Heath, and certainly there is in many points a close resemblance between the two genera. Like the latter at the Cape, Epacrises abound in New Holland, but no true Heath has been detected in company with them. The habits and requirements of both are similar, and the method of treatment adapted to Heaths suits the Epacris almost equally as well. It may be almost unnecessary for me to enlarge upon this head, but before describing a few of the most attractive varieties, I will briefly detail my practice, by which I have always been most successful in flowering these gems of the greenhouse in the greatest perfection, and have had a most extensive display of these beautiful plants in winter, when their presence adds so materially to the decoration of the house at that period.

A mixture of peat and silver sand is the only compost in which the Epacris can be grown successfully; and for this purpose the peat should be broken up in small lumps and the sand intimately mixed with it; free drainage is equally essential, and when potted a layer of moss should be placed over the crocks to prevent the finer portions of the compost being washed away in watering. They should be potted high, like Heaths, or there is danger of the collar rotting if buried in the soil.

After blooming, cut back the long flowering shoots and remove the plants into a close frame, where they should be shaded and left until they have begun to push afresh. If a stove is available, it is a good plan to place them in it for a week or ten days, which will much assist the plants. Place them in a cool frame to harden off as soon as they have made young shoots, and attend to a proper supply of air. When the new shoots have attained the length of a finger, the plants may be repotted, carefully removing a portion of the old soil from the outside of the ball. They will then require a few days' shade, and as the season advances may have the full benefit of the air by being set out of doors, selecting a shady place for them, where they may be sheltered, and placed on ashes, or some dry material of a like nature. Here they will require little attention until the close of summer, except to stir the surface of the soil occasionally, to see that they do not become very dry, and to be turned round. By the end of September let them be taken into the house; but previous to this, look them over to remove any decayed parts and clear the pots. In autumn and winter they require only sufficient temperature to preserve them from frost, and never present so healthy and vigorous an appearance as when they are allowed abundance of air, which therefore admit on all possible occasions.

We frequently meet with plants that are straggling and unhealthy; this is caused through neglect in potting. In all such cases cut back the shoots, and pot them as directed, when they will soon present a different appearance. The use of fine or sifted peat clogs up the drainage, rendering the soil too firm for the water to pass off readily, and the consequence is unhealthy, yellow-looking shoots. By making use of peat in small lumps, this is obviated, and the plants grow well in it.

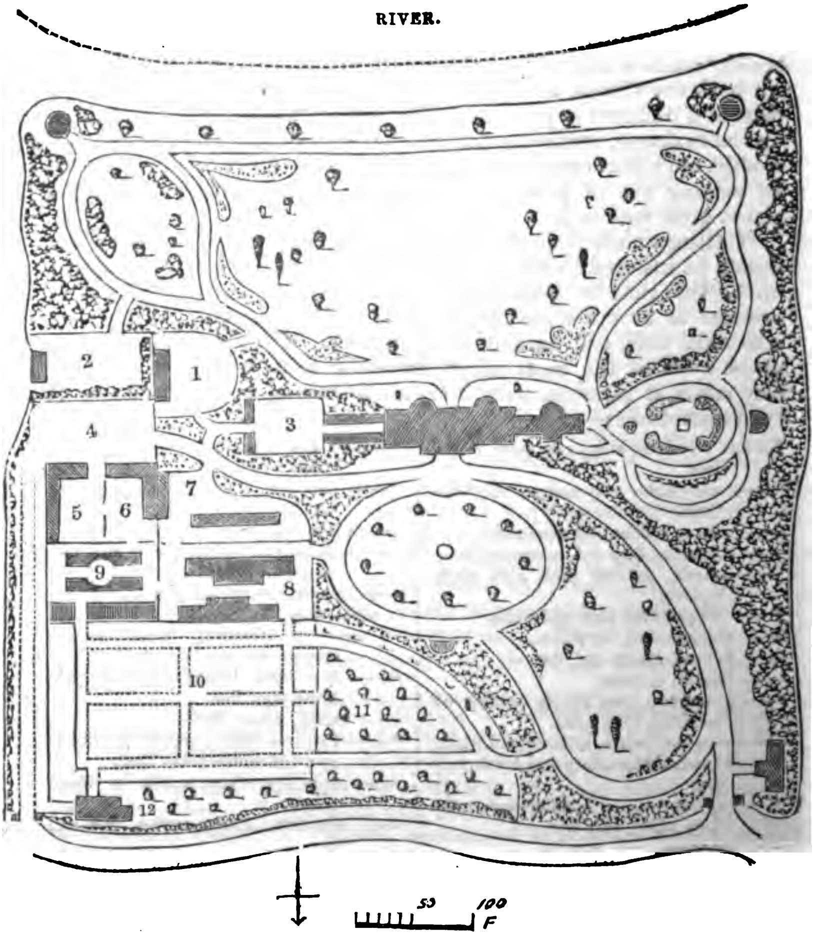
Cuttings made from the wood not fully ripened strike best. They should be inserted in silver sand, covered with glasses, and plunged up to the rims in bottom heat. They do not strike so freely in summer as at other seasons, however. When rooted, pot them off into small pots, and harden off by degrees. The following list comprises a few of the most select varieties, from which the amateur may select at pleasure, with every confidence of the truthfulness of the descriptions:—

Epacris attenuata alba, very pure white, free.
*—— carminata, rosy-orange, very distinct.
—— carnea, brilliant carmine-red.
—— coruscans, deep red, tubes very long.
—— delicata, delicate pink with white tip, fine.
*—— eclipse, rosy pink and white.
—— elegantissima, deep rose.
—— fulgens, orange-red, fine.
—— fulgida, carmine.
—— grandiflora, rosy purple shading off to white, long tubes.
———— rubra, crimson and white.
*—— hyacinthiflora, deep rosy-blush, very free.
*———— candidissima, the best white, very free.
—— impressa, rosy carmine.
———— candida compacta, pure white, very fine.
———— coccinea, scarlet.
*—— Lady Alice Peel, light salmon, quite new in colour, and very free.
*Epacris Lady Panmure, white, very long spikes of bloom.
*—— Lucifer, clear rosy-scarlet, very fine.
—— magnifica, rosy-blush, very free.
—— microphylla, white, a very neat and distinct variety.
—— miniata, orange carmine tipped with white, fine.
*———— splendens, bright orange-crimson and white, fine.
*—— Mrs. Pym, bright rose with pale blush tips, fine.
—— nivalis, white, free.
*—— Princess Royal, purple or violet-rose and white, tubes long.
—— sanguinea, deep scarlet or blood colour.
—— splendida, orange-scarlet, free and very fine.
—— Tauntoniensis, deep rose, very free.
*—— The Bride, light blush, free.
*—— Viscountess Hill, fine orange-red, free.
—— Wilmoreana, light rosy-carmine, tubes very long.

Those varieties marked * are new, and consequently sell at the present time at an advanced price; the rest are older varieties, but good, and can be procured at a much lower rate.

DESIGN FOR THE GROUNDS OF A VILLA ON THE BANKS OF THE THAMES.

BY T. RUTGER, ESQ.



As the number of houses, villas, etc., on the banks of the Thames, especially to the west of London, in the delightful eighbourhoods of Richmond and Twickenham, is constantly increasing, I forward a design suitable for a villa on the banks of that noble river, or for any other similar situation, believing it may prove useful to some of your many subscribers. The design here given comprises about eight or nine acres. The carriage drive to the house is by a lodge entrance. On the right of the house there is a conservatory attached, from which a flower-garden is entered, and on the north of the flower-garden in an open space to receive the greenhouse plants in summer. On the left of the house there is a court-yard and offices attached. At each of the south-west and south-east angles is placed a summer-house, supposed to be raised on mounds, to overlook both the river and the grounds; the one on the south-east angle is intended to have an upper room, with a veranda beneath. An alcove is placed at the back of the flower-garden, and one also at the north of the oval lawn at the entrance front. A road is given from the public road to the stables for convenience, to which the gardener's house may serve for a lodge. A light iron fence should separate the grounds from the towing path next the river. The remainder will be understood by the reference.

Reference.—No. 1, Poultry-court; 2, Bowling-green or Aviary; 3, Laundry, Brewhouse, and Yard; 4, Stables, Coach-house, and Yard; 5, Piggery; 6, Compost-ground for mixing dung, etc., and a Shed; 7, Range of Pits and a Shed; 8, Forcing Department; 9, Melon Ground with Sheds; 10, Kitchen Garden; 11, Orchard or Fruit Garden; 12, Gardener's House.

ON THE MANAGEMENT OF VINCA ROSEA AND ALBA.

BY MR. JOHN HARRISON, LATE GARDENER AT SYSTON PARK.

I HAVE grown these old favourites for many years with great success, and am sorry to find their cultivation in some measure going out of fashion, so much so that they may not improperly be classed with the "neglected plants" noticed in former numbers of your useful periodical; and we seldom see a specimen grown to any kind of perfection, or figuring respectably at our exhibitions, the most of them being of stunted growth, and far inferior specimens to what they may be made to attain. I have large plants in my possession, forming fine circular heads, with foliage of a most beautiful green and healthy appearance. When in full bloom, covered with their delightful blossoms, thoroughly expanded, the effect produced by them, either alone or placed among other plants on the stage, is almost beyond description. To show them off to advantage, I stand them on an inverted garden pot covered with fresh green moss, and when so placed, the entire mass of blossoms is seen at one time.

My plants are propagated from cuttings in the spring, selecting those that are the shortest pointed. I cut them off with a little of the old wood, and insert them in forty-eight sized pots, each nearly half filled with fine moss, pressed down as tight as possible. Over the moss I place some rich loam, with a small portion of bog earth, and spread two inches in depth of fine sand over the whole; in this the cuttings are inserted, being previously trimmed by cutting off the lower leaves, and making a clean horizontal cut across the bottom of the shoot. When inserted, the sand is pressed tightly round each cutting, and the pots plunged to their rims in a gentle heat, where they are kept, shaded from mid-day sun, until they begin to make roots. As soon as they will bear removal they are potted off into small sized forty-eights, taking care to have the pots well drained—a point of great importance in the successful management of the Vinca.

I shift the plants as soon as ever the roots have pushed sufficiently, using the same compost as for cuttings, namely, good rich loam and bog earth, well draining the pots, and plunge them again in gentle bottom heat. Attention is required throughout the summer to shifting and allowing the plants sufficient pot room, so that the roots do not become matted together. After two or three shifts, it is advisable to discontinue the use of bog earth, substituting a fourth part of well decayed hotbed manure. As the plants progress in size they are watered once a week with manure-water, which greatly invigorates their growth. In a few seasons the plants form strikingly handsome bushes, clothed with healthy, fine, green foliage, and covered with their lively blossoms in the blooming season. To keep down insects, the specimens should have a frequent good syringing over head and under the foliage; and to preserve their health in winter they do best in a stove or *warm* greenhouse.

Vinca Rosea and Alba are natives of the East Indies, from whence they were introduced as far back as 1756. Formerly they were more extensively, as well as better grown than they are at present, and formed one of the principal ornaments of the greenhouse. If the foregoing treatment be pursued, I feel assured none of your subscribers will regret the trouble; for myself, I may be permitted to add that, being a great admirer of plants when *well grown*, and having had considerable experience in large collections, I have never considered the attention necessary in obtaining this end thrown away or too much trouble, but especially requisite in my attempts to cope with, or rather to surpass my neighbours.

Should you deem these observations suitable for your valuable *Cabinet*, and likely to be useful to your subscribers, they are at your service. On a future occasion I shall have something to say respecting another plant equally valuable as well as neglected.

* * *

A FEW WORDS ON WINTERING TENDER PLANTS.

BY MR. HENRY DYER.

THE great point to be observed in keeping tender plants in cold pits or frames during the winter season is to preserve them dormant from the end of October to the end of February; for as the development of plants is more dependant on heat and moisture than on other agents of healthy existence, it is evident that the more cool and dry they are kept in winter, so that they do not sustain injury from frost or drought, the more likely are we to preserve them through that season. In order to do this the pits and frames as well as the plants should be kept dry; when I say dry, I mean the soil in the pots should receive no more moisture than is absolutely necessary to sustain the life of the plant, and prevent flagging of the leaves. The pots should be placed on a good dry stratum of ashes or some other similar material that will absorb the moisture readily, and not allow it to accumulate. The floor of the pits also should have a gentle slope from back to front, and if a drain be made to run along the front so much the better, as there will then be no danger of humidity withinside. When the weather is moderate and favourable for the purpose I would allow all air possible, and so long as there is no frost, or close approach to it, it may safely be done; keen driving winds or rain must, however, be screened off. A degree of frost, even, that would be fatal to many plants *in a growing state,* may be borne by them with impunity, if dormant, and the same may be said of seeds, providing they are kept *dry,* and both kept closely covered until they are gradually thawed. For protecting cold pits, it is well to bear in mind that it is an advantage to keep the covering material, of whatever nature it may be, free from contact with the glass, by leaving a clear space of about an inch between the two. This will prevent, in a great measure, the abstraction of heat from the pit, by interposing a stratum of nearly dry air between the one and the other. Where the covering material is in contact with the pit, the two speedily acquire the same temperature, and heat is radiated from the covering material almost as readily as it would be from the pit itself; and this is more especially the case when cold winds prevail. After a shower, also, attended with a rise of temperature, the dissipation of the moisture by evaporation causes a great loss of heat. It will therefore be apparent, that if a stratum of air be allowed between the glass and framework and the protecting materials, the heat will be much economised; when the temperature falls, the effect within the pit is much retarded as well. One of the worst protecting materials is Russian mats, laid on the frames, and yet is the one most generally in use. Wooden shutters, tarpaulin, or canvas on frames, or thatched frames are all superior to mats laid over the glass, which absorb a large amount of moisture, and consequently carry off heat as it is gradually evaporated. When plants are preserved in rooms during winter, they should receive water in quantity just enough to support vitality, and be placed as near the glass as possible, but where they may not be frozen; and at night, if frost be severe, it is best to stand them in the middle of the room, and surround them with a few cloths, which will generally be sufficient to keep them from injury.

REVIEWS.

Cultivated Ferns. By JOHN SMITH, A.L.S., etc., Curator of the Royal Botanic Gardens of Kew, pp. 84. London: Pamplin. Price 1*s*.

Index Filicum; a Synopsis, with characters, of the Genera and enumeration of the Species of Ferns, with Synonyms and References. By THOMAS MOORE, F.L.S., etc., Curator of the Chelsea Botanic Garden. 12mo. London: Pamplin. In parts, at 1*s*.

THE lovers of Ferns may be congratulated on the increasing number of works treating of this most interesting tribe that are constantly issuing from the press. Mr. Smith's little work is a valuable guide to the identification of species, and embraces no less than 124 genera and about 800 species of Ferns, all of which are in cultivation in British gardens, and most of them at Kew, under the care of our esteemed author. Besides an enumeration of species, references to figures, synonyms, and habitats, the "Catalogue" contains the characters of all the genera, and consequently will be found a most useful companion to the student as well as to the cultivator.

Mr. Moore's "*Index Filicum*" is also a useful little work, and the author's name is a sufficient guarantee for its careful compilation. The species are arranged in alphabetical order for facility in reference.

The Phytologist, for October.

The October number of this excellent publication, contains, Notes of an Excursion in the districts of Kinross, Clackmannan, and Fife; *Bryum obconicum*, its discovery in Ireland, and localities for a few of the rarer Irish Mosses; Account of an Excursion to Lulworth from Weymouth, very interesting; Cheddar Plants; Anemone pulsatilla; Reviews; and Botanical Notes and Queries. *The Phytologist* is a magazine devoted exclusively to the botany of the British islands, ntaining much and varied information respecting our native plants, well as a considerable amount of entertaining matter, notes of bota- al excursions, etc., that render it not only a useful but a delightful rk.

British Plants. By ALEXANDER IRVINE, F.B.S., etc. London: Nelson and Sons; in four parts, at 1*s*. 6*d*.

Two parts of this work have been received for our notice, being all that are yet out. We should, under ordinary circumstances, have waited until the completion of the book before recording any opinion on its merits; but from a perusal of what is already issued, we feel so entirely convinced of the practical utility of the book as to depart from our usual rule, and believe we shall be rendering a service to the student in drawing his attention to this work, from the pen of the learned editor of the *Phytologist* whilst it is still in course of publication. Mr. Irvine has succeeded in condensing a large amount of sound knowledge in a very moderate compass, and we feel assured his "*British Plants*" will be a valuable assistant and frequent companion to those who take "rambles in search of wild flowers," and a work of reference at other seasons as well.

Part I. embraces the following subjects:—Structural Botany, Physiology, Morphology, Geography of British Plants, Technicalities, and Taxonomy. Part II. contains the commencement of Descriptive British Botany, the arrangement being according to the natural system. The work is well illustrated by wood-cuts, and beautifully printed.

As a specimen of the descriptive portion of the work we select at random p. 278.

"ORDER XVI.—ARACEÆ. THE ARUM FAMILY.

"Herbs and shrubs terrestrial or aquatic, containing more or less of an acrid, caustic juice. Roots usually thick, fleshy and farinaceous. Leaves radical, sheathing, convolute in prefoliation, dilated or linear, with branching or parallel nerves. Flowers spiked (on a spadix) with a spathe, monœcious. Stamens definite or indefinite, very short. Ovary one rarely three-celled, many seeded. Stigma sessile. Fruit succulent, one-seeded by abortion, or many-seeded. Seeds with a farinaceous albumen.

"SYNOPSIS OF THE GENERA.

"*Arum.* Roots fleshy, leaves dilated, fruit pulpy.

"*Acorus.* Roots creeping, leaves linear.

"I. ARUM. Linn. Cuckoo-pint. Root thick, fleshy, Leaves radical, petiolate, hastate or sagittate, entire. Flower-stalk radical, with a leafy, convolute, sheathing spathe. Spike (spadix) naked and succulent, enlarged above. Stamens in whorls about the centre (middle) with filamentary appendages (abortive ovaries?). Ovaries below the stamens, numerous. Fruit succulent, one-celled, one or many-seeded. Seeds roundish, with a thick episperm (testa).

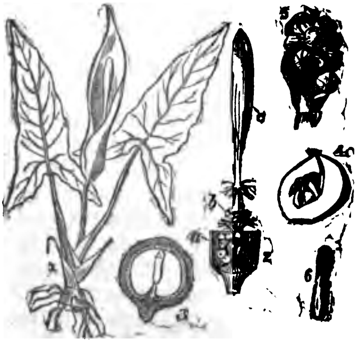


Fig. 117.—Arum maculatum. 1, entire plant, with root, leaves, and flower much reduced; 2, receptacle and column (spadix); *a*, ovaries; *b*, stamens; *c*, axis enlarged; 3 section of the seed, showing the embryo in the fleshy endosperm; 4, a longitudinal section, showing the (rarely three-celled) ovary crowned by the stigma; 5, the mature fruit; 6, the cylindrical embryo.

"The only British plant of this genus has no stem. Its leaves appear early in spring, near hedges, banks, and sheltered places. Every part of the plant is excessively acrid, and this quality does not appear to be dissipated neither by maceration nor by boiling.

"1. A. MACULATUM, Linn. Common Cuckoo-pint, or Wake-Robin. E. B. 1298, L. C. 1142. Root round, fleshy, with several fibres, very acrid. This quality is not dissipated by many hours' boiling. Leaves large, on long stalks, broadly hastate, shining, often spotted. Spathe light green, purple within, much longer than the spadix. Spike (spadix) erect, the enlarged naked part violet-coloured. Fruit, a cluster of beautiful red berries, appearing in August. Borders of fields and hedge-banks. Perennial. April, May.

"A. 14. C. 60. Lat. 50°—56°. Alt. 0—200 yards. T. 52°—47°.

"The mucilaginous fleshy roots, if dried or roasted, might possibly afford some nutritious flour. As above stated, many hours' boiling did not dissipate the acridity, and the root is accordingly deemed a very dangerous article, and, even if rendered eatable, not so palatable and wholesome as a potatoe.

"2. A. ITALICUM, Willd. Italian Arum. Curtis. 'Bot Mag.' vol. 1., p. 2432. Leaves triangular, hastate at the base, with divaricate lobes and white (yellow) veins. Spadix club-shaped, shorter than with a broad, spreading spathe. Thickets in the Undercliffe, Isle of Wight. Mr. Hambrough Curtis says, '*A. italicum* has often been confounded with *A. maculatum*, yet if any tolerable figure had ever been given, this mistake could hardly have been made. The whole plant is nearly double the size; the leaves are not only larger and veined with white, but the posterior lobes go off at nearly right angles from the foot-stalk, or are hastate, not sagittate. The spathe is very large, of a yellowish green colour, at first erect, afterwards rolled back at the point, etc. A native of Italy, Spain, and the south of France. (Compare 'Phytologist,' vol. iii., pp. 1009-10.)"

* * *

METEOROLOGICAL INSTRUMENTS FOR GARDENERS.

WE have frequently had occasion to urge the importance to the gardener of an acquaintance with the science of meteorology, and, in common with others who have pointed out the great benefits that would result, not only to gardening as a science but to science in general, were observations more numerously made and recorded, we must regret that this branch of knowledge, so useful in itself, and so interesting as a study, is still generally neglected; and that, when the state of the atmosphere is observed as regards pressure, temperature, or deposition of moisture, and the temperature and hygrometric condition of our stoves, greenhouses, and other horticultural erections for the cultivation of flowers or fruit is recorded, the observations in a great majority of cases are made with instruments that are far from trustworthy; and yet, unless made with good instruments, they are only calculated to mislead instead of instruct. It is true that of late years we have had a considerable increase in the manufacture and sale of barometers and thermometers, many of which are offered at exceed-
[illegible] prices, but from an examination of a large number of these
[illegible] its we are compelled to remark on their general want of
[illegible] and consequent worthlessness for any useful purpose. Re-
[illegible] vever, our attention has been drawn to a set of instruments
[illegible] ured by Mr. Casella, of Hatton Garden, a gentleman as
[illegible] n for the excellence of his meteorological instruments as
[illegible] votion to the advancement of this most important science.

One great obstacle that has hitherto operated as a check to the more general study of meteorology, and one that has especially applied in the case of gardeners (who are too often ill remunerated for their labour and skill), has been the high price demanded for reliable instruments;—to meet this objection, Mr. Casella has devoted his energies, and we believe with complete success, to the production of instruments of a trustworthy character, fitted for general use, not liable to variation, and at a price that will place them within reach of all. We have tested these instruments ourselves, and have no hesitation in saying they may be fully relied on, and that they are certainly superior to many instruments put forth at a much higher price. We consider that we are rendering especial service to the gardening public in drawing their attention to Mr. Casella's improved meteorological instruments, and shall now offer a few remarks on the proper use of each, with the benefits that the gardener may derive from attention to their indications and the study of the laws that regulate the changes continually taking place in the atmosphere.

THE RAIN GAUGE should be in the hands of every gardener, being an instrument of great importance in ascertaining the amount of rain that has fallen at any given locality. The amount of rain that falls in different places varies greatly, as also it does at the same place at different times, whilst the average of a series of years remains nearly the same. In the management of out-door plants and crops, as well as in the construction of cisterns and tanks for the supply of water, a rain gauge is a valuable assistant. By the use of tables of the mean fall, etc., the cultivator will be guided in judging how far the supply of moisture to the earth is needed, by comparing the former with the indications of the gauge. From the use of this instrument he will also see how beneficial is even a hasty shower to growing plants, when he considers that a fall of rain measuring the tenth of an inch in depth corresponds to the deposit of 2,262 gallons, or about forty hogsheads per acre. There are several forms of this instrument, some more convenient than others. Mr. Casella's consists of a funnel of copper, with a brass rim, accurately turned, and furnished with a pipe and collar fitting it to any large glass bottle, from which the amount of rain fallen is measured off by a glass measure, standing on a foot, and accurately graduated to hundredths of an inch, rendering it very convenient. In placing the rain gauge, a situation should be chosen as exposed as possible, away from the shade of trees or buildings of any kind, so that it may receive the rain freely, for showers, accompanied by driving winds, generally fall in a direction far from the perpendicular. The instrument should also be placed on the ground, as two gauges placed at different heights on the same spot would indicate different results, and uniformity of observation is of first importance. For this reason observers now place their instruments on the level of the ground, or within two or three feet of it.

(*To be continued.*)

NOTES ON NEW AND SELECT PLANTS.

RHODODENDRON WINDSORII. Nat. Ord. *Ericeæ*.—Another of the many handsome Rhododendrons that Mr. Booth has been so fortunate as to discover in Bhotan, where the present species grows on the mountains among Pines and Firs, at an elevation of from seven to nine thousand feet above the level of the sea, and consequently may be expected to be perfectly hardy in this country, as indeed the young plants raised from seeds sent to Mr. Nuttall, of Rainhill, have hitherto proved. The blooms are borne in crowded heads, each flower being about an inch and a half across the mouth, of a rather deep salmon-scarlet; the leaves are from four to five inches long, and about one in breadth; the upper surface a deep, dull green, and the under side light brown. (*Bot. Mag.*, 5008.)

110. UROSKINNERA SPECTABILIS. Nat. Ord. *Scrophularineæ*.—A pretty plant, introduced by the Horticultural Society, and constituting a new genus. Dr. Lindley says—"For this beautiful plant we are indebted to G. U. Skinner, Esq., the most generous of merchants, the most eager of collectors, to whom, or to whose assistance, the botany of Western Mexico and Guatemala owes more than to all the travellers who have visited those regions. Nothing more worthy of his name could well be found, for the plant is very rare, very showy, and now secured to our gardens; we therefore trust that verbal pedants will not quarrel with the manner we have contrived to escape from the difficulty of there being already a *Skinneria* in the botanical field, but agree with us that Ure Skinner may be fairly blended into a name which shall unmistakably record the labours of one who ought never to be confounded with any other Skinner whatever." It is a soft-wooded, erect-growing, herbaceous plant, covered with small hairs. The flowers are produced in close spikes of about twenty or upwards in each, and measure about an inch and a half across the mouth, which is five-lobed; they as well as the tube are of a pale violet-pink colour; the leaves are oblong, rather coarsely toothed, and from two to four inches long, of a dark green tint. It flowers in July, and requires stove temperature. (*Bot. Mag.*, 5009.)

111. EPIGYNIUM ACUMINATUM. Nat. Ord. *Vacciniеæ*.—A very handsome plant of the *Vaccinium* tribe, raised by Mr. Nuttall from seeds received from Mr. Booth, that gentleman's collector in Bhotan. It is rather common in Silhet and other districts of North-western India, and grows at an elevation of from three to four thousand feet, and generally as an epiphyte on trees. It is a shrub, growing from two feet to double that height, the branches leafy towards the extremities; the foliage is deep green, sometimes mottled with purple above, and paler, or with varying tints of purple beneath; from four to nine inches long, lanceolate and acuminate. The blossoms are very small, the corolla being almost globose, and resembling small

berries, which, together with their peduncles, are of a rich coral scarlet, borne in corymbs closely placed along the branches. (*Bot. Mag.*, 5010.)

112. DENDROBIUM CREPIDATUM; *var.* LABELLO GLABRO. Nat. Ord. *Orchideæ.*—A very delicate Orchid from Assam, supposed at first to be a new species, but now a recognised variety of *D. crepidatum;* the blossoms are about an inch and a half across, the base of the labellum tinged with rich yellow, and it as well as the extremities of the sepals and petals tinged with delicate blush. (*Bot. Mag.*, 5011.)

113. AGAPETES BUXIFOLIA. Nat. Ord. *Vacciniaceæ.*—Another of Mr. Booth's discoveries in Bhotan; it is an evergreen shrub or small bush, with a large, tuberous, root-like stem, growing on trees as an epiphyte, at an elevation of two or three thousand feet, where it flourishes in damp forests. The foliage rather crowded, an inch long, somewhat toothed, and obovate, of a bright green; the flowers are tubular, cylindrical, about an inch in length, of a bright shining red, opening into five pointed segments of a more crimson tint, the stamens and pistillum rather prominent. Mr. Nuttall states that he has grown it grafted by approach, on an *Epigynium.* (*Bot. Mag.*, 5012.)

114. SEDUM FABARIA. Nat. Ord. *Crassulaceæ.*—The native habitat of this pretty stonecrop is the mountainous district of central and western Europe. The plant grows about two feet high, and the stems are near an inch thick at the base; the leaves are produced in whorls of three, and measure three inches in length, by about half as much across. The trusses of flowers are about six inches in diameter, the petals narrow, and the stamens prominent; the colour of its blossoms, pink or pale lilac, with its fine bold habit, contribute to render it a very attractive Alpine. (*Gard. Chron.*, 209.)

NEW AND SELECT GARDEN HYBRIDS.

PELARGONIUM.—COUNTESS OF DEVON (Veitch).—A new fancy variety under this name is being sent out by Messrs. Veitch and Son, and promises to become a favourite for bedding. The upper petals are bright rosy purple, with a white margin—the lower ones white, with a beautiful spot of crimson lake in each. It is a very free and almost constant bloomer. Received a first-class certificate at the Royal Botanic Society's Show on the 1st July last.

82. ERICA MEDITERRANEA, *var.* ALBA.—Messrs. Rollison of the Tooting Nursery have obtained a new Heath, a supposed variety of *E. Mediterranea,* with white blossoms, of good habit and profuse bloom.

FLORICULTURAL OPERATIONS FOR NOVEMBER.

IN THE FLOWER GARDEN.

General Operations.—*Alterations* in grounds may be performed, choose a frosty day for removing soil, turf, etc. *Border Plants*, as last month. *Climbers*, plant and prune; Ivy, Virginian Creeper, Clematis, and others may be placed to cover blind walls. *Composts*, collect leaves and cart manures for, turn over in frosty weather; select a sheltered place to deposit them. *Dig and Fork over* all vacant ground, also between the plants in borders, being careful to avoid injury to bulbs or plants that have died down. *Evergreens* plant in open weather; those in pots may be plunged into vacant beds or borders, which will serve as a protection to the roots of many kinds, and contribute greatly to the appearance of the garden at this season. *Grass* may be cut for the last time, and should be done closely; sweep lawns and remove leaves, etc., to the compost heap. *Hedges*, plant and trim; where naked at bottom, cut down and clear out. *Hoe and Rake* in the shrubbery, and remove the leaves and refuse to the compost heap, or bury them between the plants. *Planting* may be done generally in open weather. *Prune* as required. *Shelter* such half-hardy or tender plants as cannot stand our winters with impunity, *fern*, *mats*, and *straw* coverings should be in readiness. *Shrubs* plant, mulch, and place stakes to tall ones, that they may run no risk of being twisted by winds. *Walks*, sweep and barrow off the leaves; new ones may be made, all carting operations are best done in frosty weather, when the ground is firm and hard.

Cultural Department.—*Alpines and Rock-plants*, keep clear from leaves and refuse; such as are rather tender may have the protection of a covering of fern, etc. *Anemones*, plant, see last month's instructions. *Biennials and Perennials*, cut down decayed stems, and divide or plant as requisite. *Bulbs*, these may be planted for a succession. *Chrysanthemums*, look over the plants, and take note that all are correctly named whilst in bloom; fresh label them, and procure new kinds while you have the opportunity of seeing them in bloom. *Dahlias*, *seed*, when not cut off by frost, will now be perfected; spread the heads to dry in a temperate or airy place, turning them over occasionally to prevent mould; when preserved in the heads until wanted for sowing, the seeds keep fresh and plump. *Plants*, before frost occurs let the main stems be protected with a cone of leaves or other dry material, to the height of eight or nine inches, covering it with a sprinkling of soil to prevent its being blown away; soil alone is better than no protection of the kind, but the drier it is the better. As soon as the tops are destroyed by frost, cut them down, so that the main stem is left about two feet long from the crown of the root, retaining a few inches of the main branches; this allows for gradual evaporation, and avoids the injury so generally resulting from cutting the stems close down at the time of taking up. When the stalks have somewhat dried (which will be in three or four weeks), then cut them back to about three inches in length. Dahlias should be carefully taken up, and, if available, remove them to a place where they may be dried with a little heat. In a propagating house of mild temperature, just excluding frost and cold air, we have placed thousands of roots, and do not recollect having sustained the loss of even one, although we have kept them here all fully exposed during the period of rest. *Hollyhocks*, slugs are great enemies to these plants, guard against them, those in the open ground which were earthed up should be searched over, and, this being done, lay a good sprinkling of soot and lime round them; it may be renewed occasionally during winter. *Hydrangea*, to prevent injury to those planted out of doors, give a covering of dry leaves several inches deep to plants pruned within a short distance of the ground, such being concealed by a box; to plants that are two or three feet high, an ornamental wooden stand for a vase, or something of that description, suited for the locality of the plant, answers admirably, being removed in spring. *Mirabilis*, take up and store after the manner of Dahlias. *Pinks*, see last month's directions. *Pæonies, Herbaceous*, the stems of those that have had a box or pot placed over them may now be cut off level with the top; they will be found furnished with roots throughout the whole depth of the box. Cut the stems into lengths, each having a bud and some roots; placed in good soil, two inches deep, they will each produce a new plant, and not be killed by frost. Herbaceous Pœonies may also be propagated by division of the root, in such cases, however, the plants are much longer before they flower. *Polyanthuses*, should be protected by tiles placed over them; the stock in pots, where no frame is available, should be placed in a situation where they may receive as much sun as possible until March, having them plunged to the rim of the pot in ashes, and protecting them by a covering of canvas over hoops in wet or severe weather. Protect them also from birds, by means of a net over the hoops, or the tender leaves of the crown will be picked out. *Ranunculuses*, may still be planted for early spring bloom. *Roses*, this is a good time for removing and transplanting them. The compost most suited to them is two-thirds of turfy loam, and one-third well-decomposed manure. When beds are to be planted, the ground should be deeply trenched, and afterwards a good dressing of manure should be applied. A small quantity of the compost recommended should be added round each plant. If a piece of ground be set apart for the cultivation of Roses exclusively, a situation should be chosen as open as possible, and if wet, drain it; trench as deep as the soil will permit. The beds may then be formed according to taste, and the planting proceeded with as above directed. It is not advisable to prune at the time of planting. *Rose Stocks*, transplant stocks of the common Dog Rose from copses and hedges for budding on next season, those should be selected that are straight and vigorous, and should be cut down to the height required at the time of planting. *Stocks, Queen*, those in beds should be hooped over and matted up in severe weather, uncovering them when fine. Those in patches in the flower border may be protected by branches of spruce fir or fern stuck round them, in the absence of other shelter, when the weather is severe. *Trees and Shrubs*, hardy flowering ones in pots should be plunged in a dry, warm situation, to prevent their roots being injured by frost. Place dry leaves, covered with soil, to protect the roots of newly planted choice trees and shrubs, and stake them to prevent injury by rough winds. *Tulips*, plant; the best time is during the first three weeks of the month, a little sand should be placed at the bottom of each hole, and a little over the bulb; the beds should be raised a few inches in the centre so as to throw off a large amount of the wet that may fall on them, and the situation should be one that is well drained.

IN THE GREENHOUSE, COLD PIT, AND FRAME.

General Operations.—*Air*, as last month. *Cleanliness* is of first importance to the plants, nothing promotes their health more than scrupulous attention in this respect during winter; it prevents damp, as well as the spread of fungus and insects. *Damp*, guard against, a free circulation of air is the surest means. *Fires* will require to be attended to, especially if frost appear likely. *Fumigate*, to keep down insects. *Plants*, keep clean, wash the pots, and top-dress from time to time; look over the collection and label afresh, nothing looks worse than green, illegible labels. *Temperature*, keep the greenhouse about 45°. *Water*, use sparingly, except to plants whose buds are swelling.

Cultural Department in the Cold Pit and Frame.—*Alpines*, as last month. *Auriculas*, be cautious in giving water, and see that the stock is kept clean; give them plenty of air. *Bulbs*, pot in succession for spring flowering. *Carnations and Picotees*, preserve them carefully from heavy rain or drip, which is a sure cause of spot on the leaves; should this appear, remove it by cutting off the leaf immediately with a pair of sharp scissors. Give a free circulation of air, which is the only preventative of this destructive pest. Some varieties are more liable to spot than others. *Cinerarias*, allow them plenty of air to prevent damp, and continue shifting; to keep down green fly fumigate, and if mildew appear dust with sulphur. *Ferns*, require but little water at this season. *Hollyhocks*, attend to propagation, and pot those already struck. Water should be given in the morning so as to get the frame dry before closing it up in the evening; this must be borne in mind during winter, remembering that damp is the greatest destroyer of Hollyhocks. *Hyacinths, forcing*, when they are required to flower about Christmas, take them out of the frame or pit (see operations for September) in the course of this month; it is better, however, for them to remain in the sawdust until January, when the pots will be filled with roots, and the flower-stems measure about six inches in height. When taken out of the sawdust they will be completely blanched; place in a close frame with plenty of light, and when they have remained two or three days admit a little air, and when quite green, partly plunge them in a hot-bed, giving plenty of air and light. *In Glasses*, this is the best time to place the bulbs in glasses. The water, which should be clear and soft, ought not quite to touch the bottom of the bulb, and should be frequently changed. Place them in a dark, warm closet, in order to fill the glass with roots before the top pushes, and then place them where they may receive the sun freely. *Ixias*, *Sparaxises*, *etc.*, care must be taken to keep out frost, giving as much air as possible however, in fine weather. *Mignonette for winter*, keep as near the glass as possible. *Pansies*, a stock may be potted off for spring planting; place three or four in a pot, and set them in a pit where they may be secure from drip and damp; free air is of great importance to the health of the plants. *Primroses Chinese*, see last month's instructions. *Verbenas*, unless kept quite free from damp by constant attention, there will be much danger of mildew, etc., if it should appear apply sulphur without loss of time.

Cultural Department in the Greenhouse.—*Calceolarias*, give water in moderation, and plenty of air; offsets will be found rooted, and may be potted off. *Camellias*, finish setting in; those with too many buds should be thinned out. *Chrysanthemums*, lessen the supply of manure water as the plants come into bloom; keep a sharp look out for insects, and give air in mild weather. As they go out of flower, give less water, and remove suckers if it is desired to increase stock. *Cinerarias*, see last month's directions. *Climbers*, cut back. *Epacrises* and *Ericas*, admit as much air to them as possible, and keep them cool, so long as frost is excluded; water sparingly, only just enough to preserve them from flagging. *Pelargoniums*, keep nearly dry, giving no more water than is absolutely necessary, and rather a low temperature, with air and light. *Roses, in pots*, if not yet brought in, lose no time for securing early bloom; see last month's directions. *Succulents*, require to be kept almost quite dry.

IN THE STOVE.

General Operations.—*Air*, give air whenever the weather will permit. *Bark-beds*, to keep up the heat, these should be turned or removed as necessary. *Cleanliness*, is equally necessary in this house; stir the surface soil, and keep pots, flues, and paths clean. *Fumigate*, to keep down insects. *Leaves*, all large foliage should be sponged to keep the plants in health, besides which it adds much to the appearance of the plants. *Temperature*, maintain from 55° to 60°, the orchid house 10° higher. *Water*, in moderation, and syringe with aired water on fine days.

Cultural Department.—*Azaleas*, *Laburnums*, *Persian Lilacs*, *Rhododendrons*, *Roses*, and other plants for forcing, may now be brought in, and will bloom by Christmas and in January following. *Orchids*, many may be divided now. *Winter Blooming Plants*, should be encouraged by a little liquid manure as they show their buds.

QUESTIONS, ANSWERS, AND REMARKS.

Moss on Gravel Walks.—*A constant subscriber for some years* will feel obliged by the Editor of the *Floricultural Cabinet* inserting in the next number an effectual plan for destroying moss on gravel walks. It is easy to keep down the weeds, but the moss nearly covers the walks, and it is found hitherto impossible to eradicate it. New gravelling has been tried in vain.—*A. V. Y.* [Our esteemed correspondent's letter was too late for notice in our last number. A common remedy is to strew salt over walks infested with moss, but, unfortunately, it is not an effectual one, as the moss springs up again as perseveringly as ever after a short interval. We fear your walk lies low, or is damp, and perhaps shady. We would recommend you to form an asphalte walk, which costs little, looks clean and neat at all times and requires no hoeing, indeed such walks never require anything more than sweeping, and occasionally to have a little fresh sand or fine gravel spread over them, and, if properly made, they are dry at all seasons. Write again.—Ed.]

Training Trees and Shrubs.—A good deal has been written and spoken about "Reformatory Training" in our social system; we should be none the worse off by a little reformation in the training of some of our trees and shrubs, which would be the means of obtaining better specimens of plants and more abiding ornaments to the flower-garden and shrubbery.

Lately an Arborvitæ was cut down which measured about eighteen inches in diameter about a foot from the ground; for many years it was a beautiful plant, both for breadth and height, but the bad training of its youth was the cause of its destruction in its declining years. Instead of training it with one stem there were several stems allowed to grow together, which in the course of years hastened the destruction of the plant. There were two series of roots belonging to the tree, one in the soil, and the other in the body of the stem; when the several stems increased in size the bark of the one came in contact with the bark of the other, when both were wounded, a lodgment was made for water, roots were produced at the injured parts that pushed their way into the wood, which hastened its decay, so that when snow or heavy winds came, the branches or stems were liable to be broken off, and the breaking continued from time to time until the ruins of the plant had to be removed altogether.

The training to single stems ought not to be confined to members of the Thuja family, but might be extended to species of other genera, such as Juniperus, Taxus, etc., so that when winter and rough weather assailed them, they would be able to resist the storm.—*P. Mackenzie, West Plean.*

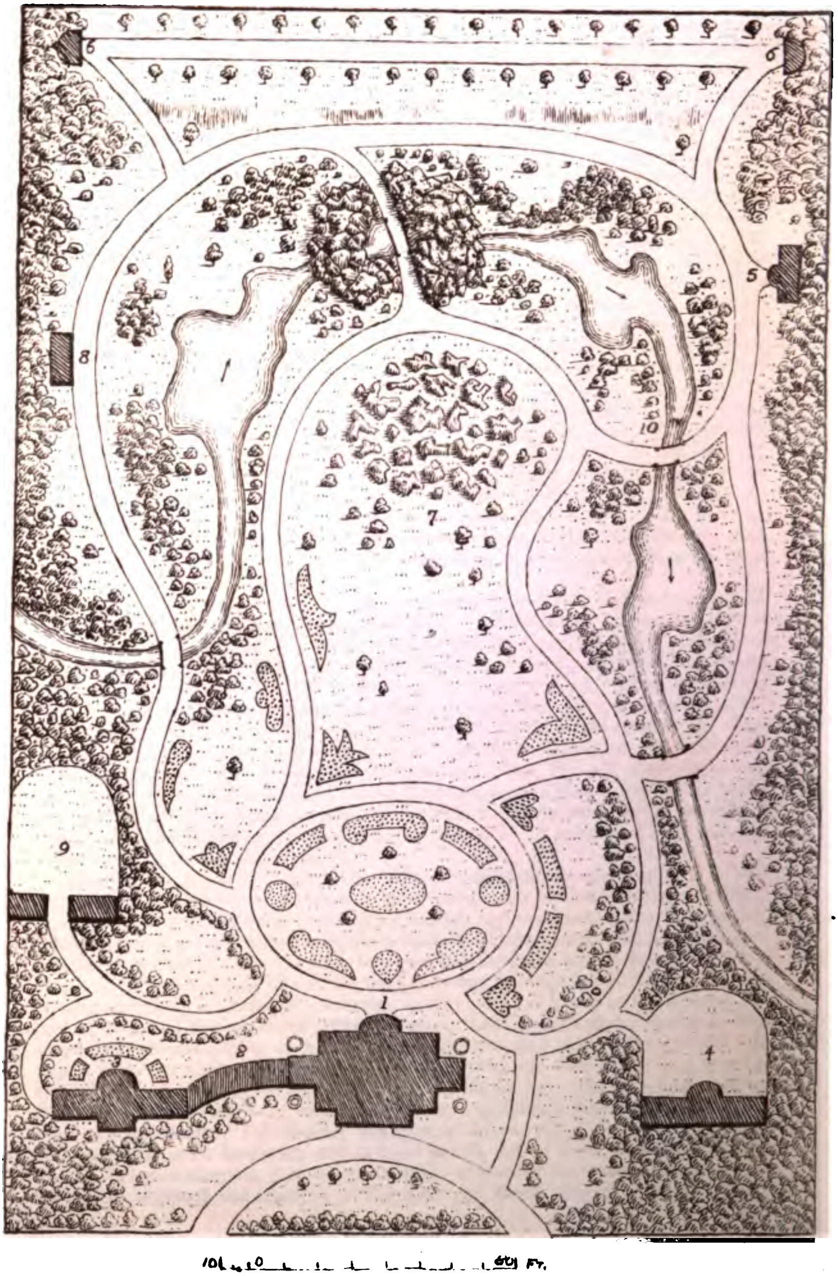
Properties of the Calceolaria.—At the request of a correspondent I forward you a few remarks on this subject for insertion in the *Cabinet*. In a perfect Calceolaria there are five points to be considered.—1st. Its outline ought to be a perfect circle. 2nd. The flowers must be thick and firm in texture, and well inflated, showing a swell both back and front, and the upper or front surface must be especially bold, swelling gradually from the edge or outline of the flower to the centre, and well filled about the orifice or throat, which should be perfectly smooth and round, and not too large. 3rdly. The outline of the flower must be even, and without notches, and the surface smooth, without ribs or furrows. 4thly. The lip or cap ought to be round and even, and not larger than what might seem to form a proper lid for the orifice, and not too long in the neck, so as to fall back, but rather low or squat, so as to seem to hang over the orifice, and not to disfigure the circular outline of the flower. 5thly. When the flower is marked or spotted equally all over the surface, then the cap or upper lip ought to be nicely spotted or marked, but when the markings are densely gathered into the centre only, then I think it would be decidedly out of character to have the cap marked, as that would break the continuity of the belting. In selfs or clouded varieties, clearness, richness, and brilliancy of colour, are essential points. I think we ought to be particularly careful, while we aim at perfection, not to discard for some trifling defect, new, rich, and distinct varieties, until decidedly better flowers in the same class are produced. Up to the present time, attention to form has prevailed to the almost total exclusion of beauty and richness of colour in the markings. Form is undoubtedly a grand desideratum, but beauty and richness of colour are, in my opinion, at least its equals, and neither should prevail to the total exclusion of the other.—*Henry Major, Knosthorpe.*

New Flower Market, Covent Garden.—Many of our subscribers are perhaps aware that an addition is about to be made to this great market by the erection of a wing for the sale of bouquets and plants in pots. The roof is to be semicircular, supported on iron columns, after the manner of the Crystal Palace, and ornamented with creepers. The length will be 220 feet, height 50 feet, and width 75 feet. A balustrade will surround the whole, and the erection will consist entirely of iron and glass. The dealers' stalls will be behind the pillars and under the balustrades. Aviaries and aquaria will also have a place in the centre, while access will be given to the interior from the new theatre, the architect of which, E. M. Barry, Esq., has designed this addition to Covent Garden Market.

VITALITY OF SEEDS.—At the late meeting of the British Association held at Dublin, Professor Daubeny read the report of the committee appointed to investigate the vitality of seeds, in which he first detailed the circumstances which caused the committee to be formed, and stated that they planted year after year all the seeds they were able to collect; they had now got but four species of plants whose seeds continued to grow. These were species belonging to the genera [illegible], [illegible], Malva, and [illegible]. He submitted a report in which every experiment so performed by Mr. Baxter, of the Botanic Garden, was detailed. From this report it would be seen that the shortest period for which any of the seeds had retained their vitality was eight years, and the longest forty-three years. Grouping the plants according to their natural orders, the following statement will give some idea of the plants whose seeds retained their vitality longest:—Solanaceæ, eight years; Liliaceæ, ten years; [illegible], twelve years; Tiliaceæ, twenty-seven years; Malvaceæ, twenty-seven years; Leguminosæ, forty-three years; Ranunculaceæ, twenty-one years; Scrophulariaceæ, eight years; Convolvulaceæ, fourteen years; Compositæ, eight years; Myrtaceæ, eighteen years; Umbelliferæ, eight years; Cruciferæ, eight years.—Dr. [illegible] stated that he had planted many seeds obtained from Egyptian mummies, but [illegible] tried to obtain any indications of their vitality.—Mr. Moore, of the Dublin Botanic Garden, related an instance in which he had succeeded in producing a new species of leguminous plant from seeds obtained by Mr. [illegible] from a vase discovered in an Egyptian tomb. He also stated that he had picked from out of the wood of a decayed Elm at least fifty years old, seeds of Laburnum, many of which had germinated when planted and produced young trees. He had once grown a crop of young Barberry trees by planting a quantity of Barberry jam, which proved that the process of preparing the jam did not injure the seed. Many seeds grew the better for being placed in boiling water before they were set.—Dr. Daubeny stated that seeds did not retain their vitality whilst entirely excluded from the air; that, in order to keep them well they should be wrapped up in brown paper, or some other porous material.—*Gard. Chron.*

ARDISIA CRENULATA.—This is a very ornamental little plant, or greenhouse shrub, that may be readily managed as a window-plant. In February, its berries, a great ornament, are in perfection: the plant being, at that time, covered with a profusion of its coral-like fruit that hang in small clusters beneath and among the leaves, and which, retain the brilliancy of their colour for a great length of time. Even without the berries it is a very beautiful plant for a room, having long serrated leaves of a fine glossy green. *Ardisia crenulata* will grow very well either in a cold room or one where there is a fire, and should receive a supply of water frequently, until the commencement of April, after which it may have it every day. This, like all other plants with shining leaves, soon shows the dust; it is, therefore, a good plan to sponge the leaves once a week, by which means it will always be a gay and lively ornament for the sitting-room, and its health will, at the same time, be promoted. A mixture of loam and peat soil is found to grow it well.—*G. G.*

MANURE-WATER FOR POT-PLANTS.—Many—indeed most—plants grown in pots may, at particular periods of the growth, be advantageously treated with liquid manure; these periods are chiefly during the time of making vigorous growth, and of blooming. Inexperienced persons, however, are liable to do material injury from using it too strong or too often; or they fall into the other extreme, and derive no benefit from the application. A very useful liquid manure for pot-plants may be made by putting the following ingredients into a hogshead of rain-water:—Two pecks of sheep or fowls' dung, one peck of soot, and two quarts of Potter's guano; these ingredients are first to be well mixed up to the consistency of paste with boiling water, and then mixed with the cold water. Stir the mixture frequently for a day or two, and then throw in a quart of quick lime; when the liquid has become clear it is fit for use. For all strong growing plants this may be used daily, or every other day, applying it diluted with about one-third of clear water. For Heaths, and similar delicate-rooted plants, and even for Orchids, it will prove beneficial; but to these should not be given oftener than once a week. As before observed, it is only to be used—at least by the inexperienced—during the periods of growth and blooming.—*The American Horticulturist.*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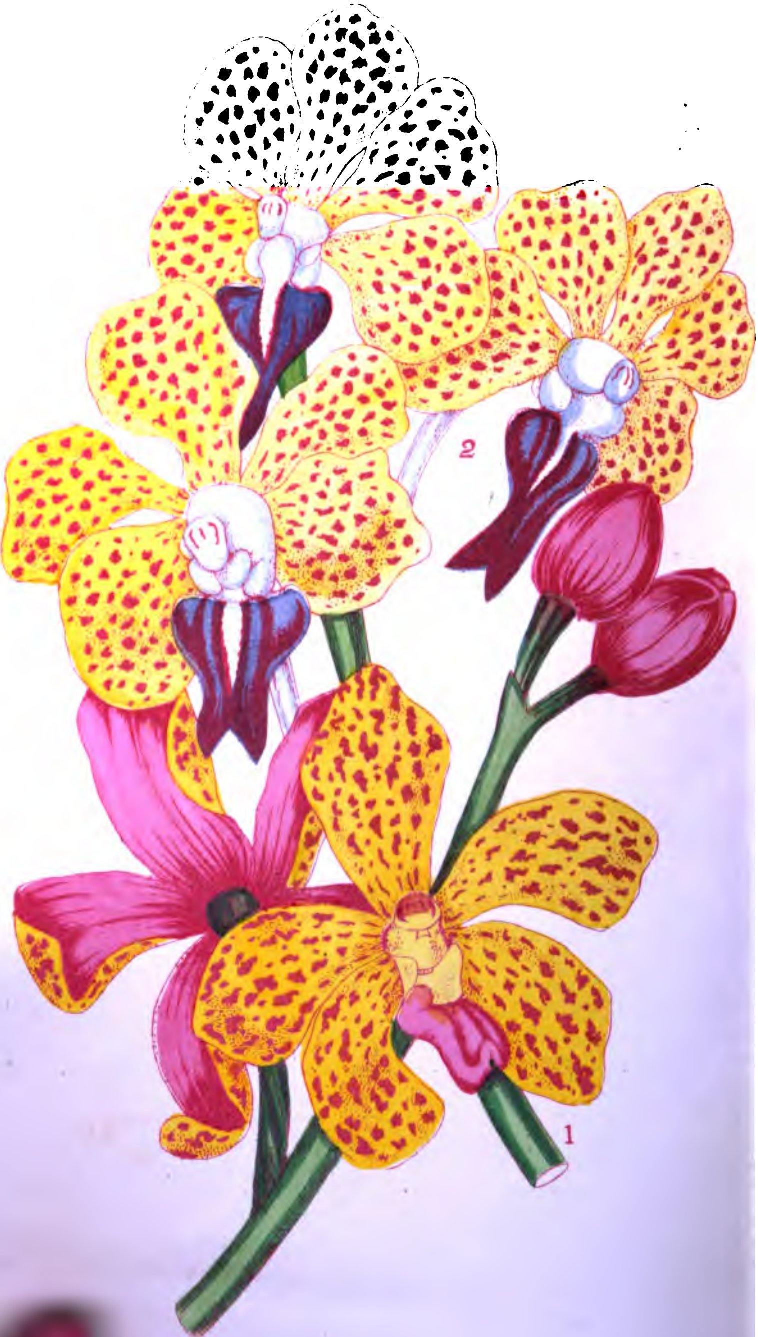
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The Floricultural Cabinet.

DECEMBER, 1857.

ILLUSTRATIONS.

1.—VANDA BATEMANNI.

2.—VANDA TRICOLOR.

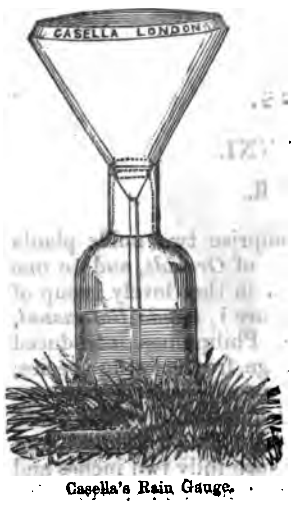
OUR illustrations this month comprise two noble plants belonging to the splendid family of *Orchids*, and to one of the most magnificent genera in that lovely group of plants, namely the *Vandas*. Figure 1, *Vanda Batemanni*, is a native of the Moluccas and Philippines, introduced a few years back by Mr. Cuming; it is a large, free-growing species, with remarkably thick ærial roots, and hard sword-shaped leaves two feet long. Its handsome blossoms, to which the size of our plate prevents our doing justice, are borne in a spike of equal length, and number some scores on each spike, and measure fully two inches and a-half across, of a rich, deep golden yellow, blotched and spotted with crimson on the face, whilst the back of the flowers and the flower-buds are a bright rosy-purple, so that, viewed in any position, they form strikingly handsome objects. Figure 2, *Vanda Tricolor*, the three coloured *Vanda*, is one of the many fine plants introduced by Messrs. Veitch and Son, through their collector, Mr. Thomas Lobb, from Java, and is even a more beautiful species than the foregoing. Its lovely blossoms are of a paler yellow than *V. Batemanni*, more regularly spotted with bright crimson, and the under sides white or pale blush. It is a somewhat moderate grower, and bears long drooping racemes of its noble flowers. These fine tropical epiphytes require to be grown fixed to blocks of wood or stumps of trees in a warm Orchideous house, and during their season of growth the atmosphere should be kept warm and moist, and gradually reduced when it is observed that the points of the roots cease to elongate, a certain indication of a cessation of the season's growth.

METEOROLOGICAL INSTRUMENTS FOR GARDENERS.

(*Continued from page* 305.)

TO give our readers a better idea of Mr. Casella's new rain gauge, we are enabled to introduce a figure of it, for which we are indebted to that gentleman.

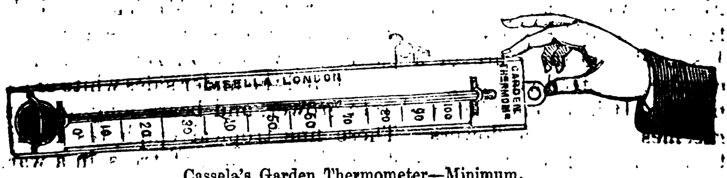
From a long series of observations it is found that the greatest average quantity of rain falls in October and the least in February, but the heaviest rains, or those that yield the greatest quantity in the gauge, come down in the summer and early autumnal months. In the summer an inch and a half will sometimes fall in less than an hour, in short and impetuous torrents; in the autumn the same quantity will occupy many hours in falling. In winter the number of wet days exceeds that of the summer period; the average fall of a winter's rain is seldom more than one-tenth of an inch an hour.



Casella's Rain Gauge.

Snow yields one-tenth of water to one inch fall in depth; or a fall of snow of ten inches in depth on the level would be equal to the deposition of one inch of rain.

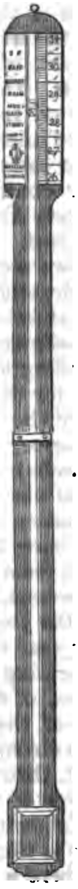
Registering Thermometers.—These instruments are so contrived as to show the extremes of heat and cold day or night, and are therefore particularly useful as a check upon the working gardeners, who have to attend to houses or pits heated in any manner. They are also very useful in the open air, by pointing out the extremes of temperature. The minimum thermometer is for the purpose of shewing the lowest temperature, or greatest degree of cold—the maximum the greatest degree of heat,



Cassela's Garden Thermometer—Minimum.

Mr. Casella has supplied a want that has been long felt, namely a low priced yet efficient minimum thermometer, not in the least liable to get out of order, which may, also, if desired, be used vertically as a common thermometer. We have tested the instrument ourselves, and are enabled to speak in high terms of the accuracy with which it is adjusted. A maximum thermometer by the same maker is an exquisite instrument; the two should be used together, and their price places them within the means of all.

The Barometer has been recently brought out in a cheap form by various makers; we have purchased a few in order to make a trial of their merits, and feel justified, after testing them, in awarding the palm of excellence to those offered by the eminent maker above named; the indications correspond closely with those of a standard instrument so far as they are capable of being measured, which, although not with the minute precision of more expensive barometers, can still be done quite near enough for all useful purposes. For ourselves we have never been able to see the utility of carrying on a system of such very minute and exact readings—the main thing is to observe the rise and fall, with the height of the column, and at most to two places of decimals. In Mr. Casella's Improved Compensating Barometer this can be done after a little practice; and although the tubes appear narrow when compared with higher priced instruments, they will be found to work well, and as such we feel no hesitation in recommending them as reliable ones. In bringing these instruments before the public Mr. Casella has endeavoured to meet the want, too long felt, of cheap yet reliable and useful "weather glasses," and in this he has certainly succeeded. We trust his exertions may be properly appreciated, and wish these instruments were, as they ought to be, in the hands of all good gardeners.


Casella's Compensating Barometer.

LEAVES AND ROOTS, THEIR FUNCTIONS AND STRUCTURE.

BY CLERICUS.

(Continued from page 268.)

ASSUMING, then, that all the carbon of the plants is derived from the atmosphere, and that a quantity of this constituent is required, not only for the due evolving of the leaves and wood, but for their subsequent nourishment, it follows that a certain portion of this necessary ingredient must be contained in the ascending sap; and, if so, it is also evident that it must be carried into the ascending sap vessels by means of the centre vessel, which I have already described as running the whole course of the rootlet, and traversing the thickness of the bark of the root, until it joins the beforementioned ascending vessels. The extending coat of the rootlet is, as I have already stated, given off from the external coat of the root, and, consequently, the proper juice of the plant in the root, and given into the rootlet, is, in the latter, exposed to the action of the atmospheric air and the water contained in the soil; and thus, being modified and diluted, it enters the centre vessel in a fit state for the due nourishment of the plant. To confirm these views let us look at a grafted tree—here we see on the same stock a variety of fruit; now on what does this depend? The answer will be, on the scion or bud introduced; in that scion is contained the germ of young leaves, which, by the nourishment supplied by the stock, are evolved, and then commences, according to *the character of the leaf*, the elaboration of the proper juice for that particular variety of fruit. Again, let us look to the fact of the maple affording its sugar from the concentrated juice of the former year, and giving it out whenever the sap begins to ascend, and before any leaf has yet appeared. At the same time it is known that if the tree be bled too much, it destroys the luxuriance of the vegetation for that season. Again, also, let us watch the progress of the young fruit tree—deriving the nourishment required, in the first place, from the immense accumulation of vegetable matter in the cotyledons, the root of the young plant thrusts itself into the earth, and the young leaves unfold themselves to the atmosphere. Year after year crops of leaves follow each other in succession—each leaf performing the important function assigned to it, of assimulating a portion of the sap in the progress of its circulation into the proper juice of the plant, which when done it dies and falls off. Our plant gains strength with every successive season, its leaves are, to a certain point, thrown out stronger and larger, and in due time, the tree is capable of bearing fruit. With the first appearance of the leaves of the following season, it is decked with flowers, succeeded by fruit. Such is the progress of a tree, from its first germination to maturity; and here we see the great importance of the leaves in maintaining the plant. If our plant is puny, its branches slender, and its leaves wanting in luxuriance, we cannot look for fruit; and in this case, what is our remedy? We apply the pruning knife; and thus by concentrating the ascending sap, instead of being distributed over a large surface, through many long branches, we give energy to the plant, and leaves and flowers burst forth in great luxuriance. It is on this principle that Dr. Klotschs attempts the cure of the potato disease, "to pinch off about half an inch from the top of the plant, when it has reached a height of six or nine inches, and to repeat the same operation, ten or eleven weeks after the time of planting, on all the stems of the plant." By this operation, the carbon of the plant is not again expended in the production of new stems and fruit, but is thrown into the tubers, producing potatoes of firmer texture, and more concentrated material. All are aware that plants are formed of organic and inorganic constituents—the organic are the woody fibre and the juices of the plant—the inorganic are the earthy and alkaline substances found there, as silica, potash, soda, etc. The organic constituents can all be resolved into the following elementary substances, namely: carbon, hydrogen, nitrogen, and oxygen. Now we have seen that the carbon and nitrogen have been derived from the atmosphere. The hydrogen and oxygen, the constituents of water, are, of course, derived from the rain which percolates through the earth. The inorganic are also taken from the earth. It is evident then, that the inorganic constituents must be found there; and if they be not there naturally, they must be supplied artificially. This is the true theory of manuring, viz., to enrich the earth so that it may be loose; that atmospheric air may permeate, and the rain percolate through it, allowing the tender fibres or rootlets free access to every part, and to supply the inorganic constituents required. Hence we see the great advantage to be gained by the admixture of any light substance, such as stable litter and other light manures, lime, ashes and other materials, where the soil is of a close nature.

In conclusion, I have attempted, in the remarks I have made, to elucidate the great importance of the leaves and rootlets of a plant, as the organs necessary for its proper development, and the maturing of its fruit. That the leaves may perform their functions in a satisfactory manner, light or sunshine, and atmospheric air are necessary, and should be freely admitted; while to allow the rootlets to perform theirs, heat, moisture, and atmospheric air are indispensable. Whatever tends to deprive the leaf of light, retards its assuming its proper tint or colour, and the plants, in consequence, lacks vigour. Strip a plant of its leaves, and prevent their further development, and it will die. So likewise, unless the rootlets enjoy freedom of extension, a sufficient supply of moisture, and atmospheric air, the plant will droop and wither. Deprive it of its rootlets and it will die. These are facts no doubt familiarly known to all, they are, nevertheless, worthy of our study and attention.

ON GARDENIA FLORIDA.

BY MR. JOHN HARRISON, LATE GARDENER AT SYSTON PARK.

SOME years ago, when the late Mr. Colville, nurseryman of Chelsea, was in the habit of furnishing plants on a most extensive scale for the routs and balls of the nobility and gentry at the west-end of London, the *Gardenia florida* was grown by him in vast numbers, whole pits being devoted to them; and so great was the demand for plants and cut flowers, that Mr. Colville thought he could never grow a sufficiency. Possessing a delicious scent, and much beauty, both of blossom and foliage, a well-grown specimen makes a highly-attractive object, and has always rendered it a particular favourite with me, and a plant to which I have devoted a large share of attention, so much so, that when a young and enthusiastic cultivator, I prided myself on the specimens that I produced. My treatment was this:—Early in spring strong young shoots were taken off and put into forty-eight sized pots, one-third filled with broken crocks; the compost consisted of equal portions of peat and loam well mixed together, over which was laid about two inches of fine sand. The cuttings were neatly trimmed, all the lower leaves being taken off, and firmly inserted round the edge of the pot, and then well watered, after which they were placed in gentle bottom heat, plunged up to the rims in the frame or pit. In a very little time they made nice roots, and were potted off singly into small forty-eights, using a mixture of one-third good rich loam, one-third leaf mould and peat, and one-third of old decayed hot-bed manure. After potting, the young plants were returned to their former quarters for a week or two, in order to obtain the stimulus of bottom heat, and then hardened off. When the pots were filled with roots the plants were shifted into thirty-twos, and finally into twenty-fours. One great point was to prevent the plants coming into bloom until thoroughly established in the larger pots, therefore, as the flowers appeared they were pinched off, which gave the plants great strength, and induced the formation of fine bushy heads. When it was desirable to have the plants in bloom they were removed into the pit, and placed on the tan or leaves until the bloom appeared; taking care at all times to give them plenty of air and gentle waterings, in order to keep the plants in a healthy growing state. Under this plan of treatment I have had noble specimens, and a profusion of bloom that has created surprise in the minds of all who have seen them, and almost surpassing belief.

NOTES OF A BOTANIST IN THE HIMALAYAS.

INTELLIGENCE of the progress and state of gardening in our colonies is at all times of the highest interest, not only as showing the advancement of the science abroad, but also, from the information that is afforded us of the success or otherwise of the attempts to grow and acclimatise those plants that we are familiar with in our own gardens, and the result of high cultivation applied to the indigenous plants. The following interesting remarks on the Botanic Gardens of Bhagulpore, in Upper India, are from the pen of that very enterprising and scientific botanist, Dr. J. D. Hooker, now attached to the splendid establishment at Kew, from whose "Himalayan Journals" we have also given a few brief extracts, to show the wonderful character and amazing fecundity of the vegetable products of that hitherto imperfectly known region. Dr. Hooker states—"To me the most interesting object in Bhagulpore was the Horticultural Gardens, whose origin and flourishing condition are due to the activity and enterprise of the late Major Napleton, commander of the hill-rangers. The site is good, consisting of fifteen acres, that were, four years ago, an indigo field, but now form a smiling garden. About fifty men are employed; and the number of seeds and vegetables annually distributed is very great. Of trees, the most conspicuous are the tamarind, *Tecoma jasminoides*, *Erythrina*, *Adansonia*, Bombax, teak, banyan, peepul, *Sissoo*, *Casuarina*, *Terminalia*, *Melia*, *Bauhinia*. Of introduced species there are English and Chinese flat peaches (pruned to the centre to let the sun in), Mangos of various sorts, *Eugenia Jambos*, various *Anonas*, Litchi, Loquat, and Longan, oranges, *Sapodillo*, apple, pear, both succeeding tolerably; various Cabool and Persian varieties of fruit-trees; figs, grapes, guava, apricots, and jujube. The grapes looked extremely well, but their management requires great skill and care. They form a long covered walk, with a row of plantains on the west side, to diminish the effects of the hot winds; but even with this screen, the fruit on that side is inferior to that on the opposite trellis. Numerous cerealia, and the varieties of cotton, sugar-cane, etc., all thrive extremely well; so do many of our English vegetables. Cabbages, peas, and beans, are much injured by caterpillars. Raspberries, currants, and gooseberries will not grow at all. Excellent coffee is grown; and arrow-root, equal to the best West Indian, is prepared at 1s. 6d. per bottle, of twenty-four ounces—about a fourth of the price of that article in Calcutta.

"In most respects the establishment is a model of what such institutions ought to be in India; not only of real practical value, in affording a good and cheap supply of the best culinary and other vegetables that the climate can produce, but as showing to what departments such efforts are best directed. Such gardens diffuse a taste for the most healthful employments, and offer an elegant resource for the many unoccupied hours which the Englishman in India finds upon his hands. They are also schools of gardening; and a simple inspection of what has been done at Bhagulpore is a valuable lesson to any person about to establish a private garden."

Dr. Hooker gives the following account of the botanical productions, etc., at the base of the outer Himalaya:—"Every feature, botanical, geological, and zoological, is new on entering this district. The change is sudden and immediate; sea and shore are hardly more conspicuously different; nor from the edge of the Terai to the limit of the perpetual snow is any botanical region more clearly marked than this, which is the commencement of Himalayan vegetation. A sudden descent leads to the Mahanuddee, flowing in a shallow valley, over a pebbly bottom; it is a rapid river (even in April), its banks are fringed with bushes, and it is as clear and sparkling as any trout stream in Scotland. Beyond it the road winds through a thick brush-wood, choked with long grasses, and with but few trees, chiefly of *Acacia*, *Dalbergia Sissoo*, and a scarlet-fruited *Sterculia*. At this season only a few spring plants were in flower; leaves of terrestrial Orchids appeared, with ferns and weeds of hot damp regions. I crossed the beds of many small streams; some were dry and all very tortuous; their banks were richly clothed with brush-wood and climbers of Convolvulus, Vines, Bignonias, etc. After proceeding some six miles along the gradually ascending path, I came to a considerable stream, cutting its way through stratified gravel, with cliffs on each side fifteen to twenty feet high, here and there covered with ferns, the little *Oxalis sensitiva*, and herbs of various kinds. The road here suddenly ascends a steep gravelly hill, and opens out on a flat or short spur, from which the Himalayas rise abruptly, clothed with forest from the base; my immediate destination, the little bungalow of Punkabaree, nestled in the woods, above which, as far as the eye could reach, were range after range of wooded mountains, 6000 to 8000 feet high. The ascent to Punkabaree is sudden and steep, and accompanied with a change in soil and vegetation. A giant forest replaces the stunted and bushy timber of the Terai Proper; of which the *Duabanga* and *Terminalias* form the prevailing trees, with *Cedrela* and *Gordonia Wallichii*. Smaller timber and shrubs are innumerable; whilst a succulent character pervades the bushes and herbs, occasioned by the prevalence of the nettle tribe. Large bamboos rather crest the hills than court the deeper shade, and of the latter there is abundance, for the torrents cut a straight, deep course down the hill flanks; the gulleys are choked with vegetation and bridged with fallen trees, whose trunks are richly clothed with orchids, pendulous *Lycopodia*, and many ferns. * * * At about 1000 feet above Punkabaree, the vegetation is very rich, and appears all the more so from the many turnings of the road, which afford glorious prospects of the foreshortened tropical forests. The prevalent timber is gigantic, and scaled by climbing *Leguminosæ*, which sometimes sheath the trunks, or span the forest with huge cables, binding tree to tree. Their trunks are also clothed with parasitical Orchids, climbing Pothos, Peppers, Vines, Convolvulus, and Bignonias. The beauty of the drapery of the Pothos leaves is pre-eminent, whether for the graceful folds the foliage assumes, or for the liveliness of its colour. Of the more conspicuous smaller trees, the wild banana is the most abundant, its crown of very beautiful foliage contrasting with the smaller-leaved plants amongst which it nestles; next comes a screw-pine (*Pandanus*) with a straight stem and a tuft of leaves, each eight or ten feet long, waving on all sides. Bamboo abounds everywhere; its dense tufts of culms (or stalks), 100 feet high and upwards, are as thick at the base as a man's thigh. Twenty or thirty species of ferns (including a tree-fern) were luxuriant and handsome; while foliaceous lichen and a few mosses appeared at 2000 feet elevation. Such is the vegetation of the roads through the tropical forests of the Outer Himalaya."

NOTES ON HARDY EVERGREENS.

BY CLERICUS.

(*Continued from page* 216.)

No. III.—The Juniper Tribe.

JUNIPERUS COMMUNIS, Common Juniper.—Well known; the leaves spreading in threes; berries rather long, purple or black; flowers having much whitish pollen. Height from six to twelve feet. Inhabits Europe, North America, and Asia. This shrub is of slow growth, and endures for a very considerable time, and is excellently adapted for hedges. The wood is aromatic, and finely veined.

J. oxycedrus, Brown Berried Juniper.—Leaves in threes, spreading, shorter than the berries; flowers in May and June. From Spain and Portugal, where it attains from ten to twelve feet.

J.macrocarpa, Large Fruited Juniper.—A handsome evergreen from Greece; attaining a height equal to the preceding species, which its leaves also resemble, but the berries are twice as large and covered with a violet bloom; supposed to be only a variety of *J. oxycedrus.*

J. Virginiana, the Red Cedar.—Another well-known member of this beautiful family; the leaves in threes, imbriceted when young; fruit small, dark blue, ripe in October and November. Height from thirty to forty feet; in North America, its native country, ten feet higher. Its rate of growth is slow after the first few years, but this is of advantage in limited grounds, and the plant makes a very handsome appearance on a lawn. The common name, red cedar, has been given with reference to the heart wood, which is, when polished, of a fine red, and is used in the manufacture of lead pencils—the outer wood is quite white. It inhabits Maine and southward to Georgia, in the United States.

J. Sabina, the Savin.—A low-growing or procumbent shrub; the leaves opposite, imbricated, oval and rather pointed; the berries black, ripening the following spring. From the south of Europe, whence it it was introduced to this country more than three hundred years back. The Savin makes an excellent undergrowth, and looks well in the foreground of a shrubbery. It will flourish in even the poorest soil.

J.Phœnicea, Phœnician Juniper.—Leaves in threes, very small on the young branches, imbricated, closely covering them like scales; berries pale yellow or greenish. A fine shrub from the south of Russia, and around the Caspian sea; but deserving of more general cultivation than it has received hitherto.

J. thurifera, Spanish Juniper.—Inhabits Spain and Portugal, and sometimes attains a height of thirty feet. The leaves are imbricated, overlapping each other like scales, in four rows up the young branches; the berries are large and very black. It forms a handsome shrub, and looks well on the lawn. Cuttings strike readily.

J. excelsa, the Tall Juniper.—Remarkably handsome, forming a rather tall-growing, erect, and upright shrub or small tree of from thirty to forty feet high. The branches are slightly pendant; leaves opposite, in four imbricated rows. It is tolerably hardy, but at present little known. Grows in the Himalayas, Siberia, and North America, from whence we first received it in 1806.

J. Chinensis, Chinese Juniper.—Introduced from the country which name it bears in 1820. It grows about fifteen feet high, and looks very pretty when well grown. The leaves imbricate, and short; berries bluish black, ripe in the month of November.

REMARKS ON CONSERVATIVE WALLS.

BY A NOBLEMAN'S FLOWER GARDENER.

MANY plants, both greenhouse and some that require a higher temperature, and especially the deciduous ones and those of rapid growth, will succeed admirably when planted out of doors during the summer, either as standards or against a wall with an exposure to the south; and these not only grow and occasionally flower during summer, but if allowed to remain through the winter with sufficient protection they will grow vigorously, and live for many years, blooming each successive season. Trained neatly along a wall out of doors they have a better appearance than in the house, and have the full benefit of sun and air, which is, to them, as to almost all plants, a great benefit. Walls used for this purpose, and fitted up for the attachment of a proper protecting material in winter, are called "conservative walls," and are comparatively one of the later inventions of ingenious gardeners of the new school. They rank next to conservatories, and form most interesting appendages to a good flower garden. There are many situations in which a wall may be made available for this purpose by the amateur; the gable end of a house, or a wall that is, perhaps, at present occupied by nothing better than ivy or the commonest creepers, may, for a small outlay, be converted into a conservative wall, on which he may train some of the most beautiful objects comprised in Flora's wide domain, and have an attraction far superior to that which he now possesses. The conservative wall may also in some degree be considered as a substitute for the conservatory, to be made use of by persons whose income will not allow them the indulgence of so great a luxury. To assist these, I have thrown together the following hints, which I hope may be serviceable:—In the construction of such a wall the first thing to do is to form a suitable border, on which success in a great measure depends. It is necessary to know the nature of the subsoil—if this be very close and wet, let the earth be removed to the depth of at least a yard, and lay some coarse material at bottom, covered with sifted gravel as a drainage—broken bricks is as good as anything, with gravel or cinders over it, and about a foot in depth. A good drain should always be made, and should be three feet deep, to carry off the moisture from the bottom; for this purpose it should have a rather steep inclination; and where the wall is of considerable length, other cross drains will prove of the greatest benefit. The border may then be filled in, and should be about two feet deep by six feet in width. The compost is best made up of one-half turfy loam, one-fourth peat, and one-fourth leaf mould and rough sand well incorporated. After making the border it is necessary to construct a trellis on which to train the plants, which is much preferable to training them on the bare wall. For this purpose laths or slender wooden rods, painted green, look well, although a wire trellis is neater, more durable and about the same expense in the end. To form a wire trellis, let stout wires be stretched at intervals of four feet apart, vertically from top to bottom of the wall, and across these run thinner wires parallel with the ground, at one foot distance; hooks driven into the wall serve to hold the wires. The stout wires may be of the size known as No. 10, and the thin ones No. 16. For a protecting material I have seen nothing that answers better or has a neater appearance than canvas screens, on rollers; a broad coping of stone or a wooden one laid over will serve as an additional protection, and to this the rollers may be attached.

The plants should be put in carefully, and arranged in a judicious manner; the evergreen kinds for the sake of effect mixed with the deciduous, and placed according to the space they are likely to cover and the height they attain. The dwarfer should be placed to occupy the vacancies between the stems of taller growing sorts that are frequently bare towards the root. After they are planted they will require careful training and tieing to the wires. Concerning management, there are but a few points to be attended to;—one is to keep the plants screened from sun as long as there is any danger of frost, so that they may not be excited into growth until the middle of April, after which the more warmth and light admitted to them the better. During hot and dry weather syringing in the evening is very beneficial, after the sun is off the wall. As winter approaches, lay over the border a dressing of good leaf mould, which should then be forked lightly in, and next protect the roots with a covering of peat or heath soil to the depth of a couple of inches, which will generally be found quite sufficient. When the weather is severe however, straw, or, what is better, fern may be spread along the bottom of the wall and around the roots. If a warm, or flued wall can be made use of, it will enable the possessor to command a temperature that will preserve many beautiful climbers through the winter that he could not otherwise grow—although there are a great number of fine things that will do well under a canvas screen alone. From the following list a good selection may be made:—

Aloysia citriodora.
Bignonia radicans.
Camellias.
Ceanothus azureus.
Chimonanthus grandiflorus.
Clematis; many kinds.
*Clianthus punicens.
Coronilla glauca.
Daphne odora.
——— Indica rubra.
Fabiana imbricata.
Forsythia viridissima.
Fuchsias.
Jasminum nudiflorum.
Myrtus.
Olea fragrans.
Passiflora cœrula.
——— incarnata, and others.
*Plumbago Capensis.
*Sollya heterophylla.
Solanum crispum.
*——— Jasminoides.
Tropœolum pentaphyllum.
*Veronica Andersoni.
Vestia Lycioides.
Weigelia rosea.

Those marked * succeed best with a little heat, by means of flues, in the depth of winter, although in the southern counties they will do very well without it.

To fill up vacancies towards the lower part of the wall Salvias, Fuchsias, Chrysanthemums, Tea Roses, and many other plants of a like nature may be made use of.

* * *

ON THE TREATMENT OF SUCCULENTS.

BY MR. WILLIAM GRAY, PECKHAM.

THE cultivation of this class of plants, until within a few years past, was not favoured by many since the time of Dillenius and Lee. However, succulents have again begun to occupy the attention of the cultivator. As a class they are curious in habit, as well as beautiful in flower, and may in some degree be said to resemble orchids in this respect, whilst their cultivation is attended with far more ease and much less cost. Succulents may be grown in situations where but few other exotic plants would flourish, and require much less trouble and attention in their management; they seldom require to be re-potted, and can live for a long period with little or no moisture, without sustaining any injury. Even of the most tender there are few that will suffer in a temperature as low as forty-five degrees; requiring therefore but little heat. They may be said to be the most easily cultivated of any plants, and admirably adapted for those who superintend the management of their own. Naturally they inhabit the dryest situations, on bare rocks and sandy plains, where not even a blade of grass can exist, alternately exposed to heavy dews at night and the scorching rays of the mid-day sun during the day. A large portion of the nourishment they receive is conveyed by thousands of mouths (invisible to the naked ege, but covering their surface) to the mass of juicy beds of cellular tissue which lie beneath the skin; the roots convey the rest. In a high, moist temperature, many succulents may be grown to a large size in a short time; and during the growing period all of them flourish better in a moist atmosphere. Where it can be done it is a great advantage to have a house entirely appropriated to them. But few species attain a great height, consequently a low roofed house is well suited to them. As small houses may be put up at a trifling expense now that glass is so cheap, most amateurs may erect one for the purpose. Such a house may be heated by gas where it is available, which is a very neat plan, and requires little or no trouble in attention.

Mesembryanthemums, with the exception of a few annual species, may be all propagated very readily from cuttings, taken off at any time during spring and summer, dried for a day or two in a shady place, and then inserted in pots of light sandy loam and lime rubbish. They do not require to be covered with bell glasses, but should be placed on a cool, dry shelf, or in a dry pit, where they can be shaded until they have begun to make roots, which will be in from three to five weeks; they may then be potted off into small pots, with light rich loam, well drained; a slight mixture of very rotten manure is of advantage. Unless the cuttings be dried before inserting them, they are very liable to damp off. The genera *Rochea*, *Portulacaria*, *Kalosanthes*, *Crassula*, *Turgosia*, and others may also be raised from cuttings without any trouble. The *Agaves* and *Furcræa* are multiplied by suckers, which in some species rise plentifully from the roots; others, however, more rarely show a disposition to increase in this manner, unless the centre or crown of the plant be injured, or cut out. The *Echeverias* produce abundance of small leaves upon the flower stems, which, when ripe, fall off; and if laid on the surface of the soil in a pot, will, in a few days, send out roots and produce perfect plants in three weeks, a fact not generally known. This genus is very hardy; and *E. coccinea* and *gibbiflora* are very elegant flowering plants. *Sempervivums* are multiplied by cuttings, offsets, or seeds, which they produce freely. Most of the cactus tribes, as *Cereus*, *Cactus*, *Echinocactus*, *Epiphyllum*, *Mammillaria*, and *Opuntia*, may be increased by offsets, or cuttings; light sandy loam, with a considerable admixture of lime rubbish is the best soil for this tribe.

With regard to temperature, many succulents are more frequently injured by two much heat, rather than cold. With the exception perhaps, of a few *Cacti* and *Stapelias*, the rest flourish best in a comparatively cool atmosphere. Even a cold pit, if *dry*, will answer well—the only fear of losing them in cold pits being from an excess of damp. During winter this tribe needs very little water, and every care should be taken to see that there is no drip from the glass, arising from broken squares, cracks, or imperfect glazing, as at this period many of the delicate kinds will perish from this cause, although in spring and summer they will be benefitted by an occasional syringing over-head. Air should be freely admitted, both in winter and summer—in the winter by opening the side lights in fine days. The soil should be frequently stirred, and attention directed to keep down insects, to which they are rather liable, particularly to scale, white bug, and green fly; the first may be sponged off with soft soap and water, the second washed off with simple water, and the last got rid of by fumigation. In regard to temperature, most succulents will bear forty-five degrees and even lower, while a few stand two or three degrees of frost with impunity.

The strong shrubby *Aloes*, *Crassulas*, *Mesembryanthemums*, and *Sempervivums*, are benefited by being placed out of doors from the beginning of June to the end of September; the best situation is a place fully exposed to the sun, and on a stratum of ashes or gravel; an awning of canvas to screen them from excessive rains would be found highly conducive to their health, but may be dispensed with. The *Cacti* should be turned out as soon as they have bloomed. The majority of succulents do not require frequent re-potting, but should all be thoroughly drained.

REMARKS ON POPULAR FLOWERS AND OLD GARDEN FAVOURITES.

BY MR. EDWARD SHEPPARD.

No. III.—The Christmas Rose.

HELLEBORUS NIGER, the Christmas Rose, demands our admiration from the early season of its blossoming, and the delicate beauty of its flowers. In form they resemble a large single white rose, and are surrounded by handsome dark-green glossy leaves, which show off its chaste blossoms to great advantage. Like all the plants of its order it possesses valuable medicinal properties, and was believed by the ancients to be very efficacious in the cure of mental diseases; they also used it to purify their houses and hallow their dwellings, and believed by so doing they kept away evil spirits. This ceremony was performed with great devotion, and accompanied with the chanting of solemn hymns. In like manner they blessed their cattle with it, to preserve them from an evil spell; for these purposes it was dug up with much ceremony by the ancient Greeks, with prayers to Apollo for leave to dig up the plant, and to Æsculapius for a blessing on its virtues; during the ceremony the flight of eagles was much attended to; should one of these birds approach, the taking up of the plant was deferred.

The Christmas Rose has long been in cultivation in our English gardens, as we learn from that indefatigable old botanist, Gerarde, who in his "Herball," fol. 1597, p. 826, tells us, after enumerating four species, "These Hellebors growe vpon rough and craggie mountaines: the two last do grow wilde in many woods and shadowie places in England: we have them all in our London gardens." These early embellishers of the parterre are valuable from blossoming at such a season when there are few plants beside to enliven the garden, and are worthy of being cultivated more extensively; they are very hardy, and a succession may be had in bloom by forcing a few plants in pots for the decoration of the greenhouse or dwelling-room. Their propagation is easy, by division of the roots any time between the months of June and October; rich mould suits them well. *Helleborus niger*, as well as other species, is a native of southern and central Europe. *H. viridis* has green flowers; *H. purpurascens* is a green and coppery coloured variety; *H. atrorubens* pale green and purple: *H. lividus* pale yellow green; *H. odorous*, which possesses a scent considered agreeable, is an intense bright green; while *H. Olympicus* and *H. Orientalis* are white, tinged with a delicate blush. I have all the above in my garden, where they make really pretty objects, blooming in succession from about Christmas to the end of April. Coming into blossom whilst "winter lingers in the lap of spring," they have a considerable value in my eyes, and I would sooner dispense with many other plants than part with the modest "Christmas Rose."

CULTURAL REMARKS ON GLADIOLUS INSIGNIS.

BY A JERSEY FLORIST.

THE cultivation of *Gladiolus insignis*, although one of the handsomest of that beautiful class of Cape bulbs, appears to have been neglected more than the plant deserves. Its fine spikes of blossoms of a rich crimson, marked with blue on the three lower petals, are truly beautiful, and render it a striking object, whether grown in the border or in pots. I have grown it for some years in both ways, and the following is the outline of my practice:—

To commence with pot culture. The compost I use for this purpose consists of good friable loam with a little gritty sand, in which I pot the roots, in six-inch pots, in October. I place them in a cold pit or frame, and until the roots have pushed well, I give but a very moderate quantity of water; they remain in the cold pit until the end of February, when I re-pot them into a larger size, using a little old decayed hot-bed manure with the compost before named, the manure being placed at the bottom of the pot, and not in contact with the bulbs. After this re-potting I return them to a situation where they may have the full benefit of the sun, giving them liquid manure in a diluted state. Early in June they will bloom, throwing up fine branching spikes of their delightful blossoms, three feet and upwards in height, and presenting a splendid appearance. When they have gone out of flower I place them out of doors in a shady place, and diminish the supply of water by degrees as the leaves wither, when I turn them out of pot, and usually find two or three strong roots to each, as well as younger ones, which I take off and place in a drawer for potting the following season.

For culture in the flower-garden I fix upon a situation that is open to the sun as much as possible, where I commence in September the formation of a bed for their reception, by digging in a good layer of manure, well decomposed; I let the ground remain rough for about a month, to sweeten the soil. About the middle of October I rake the bed smooth, and proceed to mark out rows for the roots, so that they may be nine inches apart. They are then put in four inches deep, and not nearer than eight inches in the rows. To protect them from frost in winter, I spread a little litter, or sand over the bed, not more than an inch deep. Although the roots do not make much progress through the winter, such protection is necessary to preserve the growth from injury beneath the surface, which would seriously injure their bloom. When the spring begins to advance, their leaves make rapid progress, and reach a foot to a foot and a half high; by midsummer they bloom, and last a month or six weeks in great beauty. Out of doors their flower-spikes do not attain so great a length as in the pit or greenhouse, but I think the colour of the flowers is richer and more vivid, The leaves begin to decay as the bloom passes off, they are then taken up and divided, and placed in a dry place, in store for another year's planting.

When grown in poor soil, *Gladiolus insignis* will not make such a good display—a situation fully exposed to the sun, as I have before stated, is a point of some importance in obtaining a good bloom; and if treated in such a place as I have indicated above, the grower will be amply rewarded by a strong bloom.

◆

Horticultural Society.—We learn that the society has just received from Dr. Royle a small quantity of seeds of the Abies Deodara, Cupressus tortulosa, Pinus excelsa, and of the interesting hardy Bamboo, and packets may now be had by Fellows on application.

DESIGN FOR A VILLA RESIDENCE AND GROUNDS.

BY T. RUTGER, ESQ.

THE design herewith given comprises about an acre and three quarters, and is intended for a villa residence. The ground is supposed to be rather undulated, and the streamlet to flow along the hollow parts thereof, and widened where convenient, and at the least expense.

In the progress of the stream, it will be perceived that it passes through a grotto, and where it crosses the walks, rustic bridges are intended. At the southern extremity, there is a considerable rise in the ground, and on its summit a broad walk, and an avenue is introduced, with an alcove at each end. The design is partly intended to show what may be done with a small stream of water, when the ground will allow, by diverting it from its natural course, and thus be made a principal source for embellishment. Ornamental vases, statues, etc., may be placed in a variety of situations fancy may direct. The reference will explain what is further necessary.

Reference.—No. 1, House; 2, Covered Way, with glass sides and roof, leading to the Conservatory; 3, Conservatory; 4, Aviary; 5, Tea-room; 6, Alcove; 7, Rockery; 8, Summer-house; 9, Bowling-green, or children's Play-ground; 10, Cascade.

By way of conclusion, a word or two about rockeries may not be amiss. Perhaps there is nothing in ornamental gardening that requires more taste in designing than a rockery. We frequently see a mass of stones with other materials heaped up together in a sort of chance way, without reference to anything like a design to make it interesting, so as to meet the eye with any degree of pleasure, or to make it useful in a scientific point of view, both of which should be aimed at. Rockeries, on a large scale might be constructed, so that the masses of rock might be divided, with room to walk in and round about the interior of the mass. The rock plants might then be introduced with greater advantage, with respect to situation, aspect, etc., and thus be made a very interesting feature in the garden, particularly to those who are interested in rock plants. Some years ago I witnessed a rockery of this description in Mr. Pince's nursery at Exeter.

* * *

GYNERIUM ARGENTEUM.—Your correspondent *J. D.* in the October number of the *Cabinet* has given a description of his plant. I beg to inform you that I have a fine specimen of this striking grass that exceeds it. The tuft is about twenty-five feet round, and twenty feet high, with twenty spikes in full flower.—*S.*

INSECTS INFESTING PLANTS IN THE WINTER SEASON.

BY THE FOREMAN OF A LONDON NURSERY.

DURING winter the insect creation is generally inactive, and the gardener is not so liable to be plagued with them as he is in summer. In houses where a high temperature is maintained, however, they continue active, and unless looked after they will frequently commit serious damage, besides disfiguring the house and plants. Now that there is not so much to do out of doors, greater leisure is allowed for destroying these pests, and there is scarcely a day but something may be done towards it, as well as to keeping the plants clean. In the greenhouse insects are not so abundant now as in the stove, and one of the principal means whereby they are found in the cooler house arises from neglect when plants are introduced into it from the stove; before this is done at any time it will be found to conduce greatly to the desired end if the plant be looked over well first, and thus a great deal of vexation and trouble may be saved.

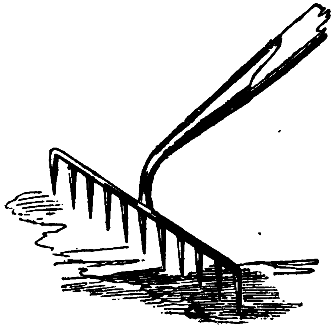
Where any pits or houses are left empty, and before cleaning them, it is a good plan to burn a quantity of sulphur in them, shutting up close, and keeping the fumes in for a few hours; a dry day is best for this operation. The greatest pest now found in the greenhouse is the thrip, and this commonly on Azaleas, which are very subject to it. Fumigation and a wash made of sulphur and lime-water, in which a little size is dissolved, are the best remedies. As the plants will bear more smoke now than earlier, they should have it administered strongly.

Camellias, Oranges and many other descriptions of plants are subject to the scale; nothing is so effectual in clearing them as sponging the leaves well with soft soap and water, giving them a good syringing as a finish. Plants with small leaves cannot be treated in this way. They may be dipped in the soap and water, made strong, and allowed to stand three or four days, and then be well syringed with clean water, heated to about sixty or seventy degrees. If this be not sufficient to rid them, they may have a repetition of the same process; it will, however, sometimes fail, and in such cases, unless the plants can be cut down, they had perhaps as well be given over as incurable. The fecundity of the green fly is well known, and they are troublesome even now—the best remedy is tobacco-smoke, and the proper way is to have the fumigator always in readiness, and as soon as one insect of this kind is perceived, apply the tobacco immediately. Some have recommended the use of various solutions, but I have always found smoking effectual, if not at once, on a second application. Another insect, the mealy bug, is common, but generally to be found in houses of higher temperature than the greenhouse. It is, perhaps, the greatest nuisance of all, requiring, when once it appears, constant labour to keep it in subjection and a long time to get rid of it altogether, as it increases prodigiously if left to have its own way. When first discovered, if only on one plant, destroy the plant rather than run the risk of the consequences of retaining it. When a collection of plants is infested, those of least value may be got rid of altogether by burning them first, the remainder of them should be dipped in strong tobacco-water, with sufficient size in it to render it sticky: this will adhere to the plants and kill the insects; after a day or two it may be washed off. Perseverance in this way will ultimately be followed by the desired success, but the gardener should always bear in mind that "prevention is better than cure," and true economy teaches that it is better to keep a sharp look out than to allow such pests to increase and multiply.

RECENT IMPROVEMENTS IN HORTICULTURAL APPARATUS, IMPLEMENTS, AND MANUFACTURES.

(*Continued from page* 295.)

WE have yet a few articles deserving of notice, from the manufactory of Messrs. Gidney and Son, of East Dereham. Their new Garden Rake is very different to those at present in general use, and we have found it very efficient, especially in strong soils, where weeds and decayed vegetable matter are so liable to clog up the common form in which this tool is made, especially about the neck.



Improved Garden Rake.

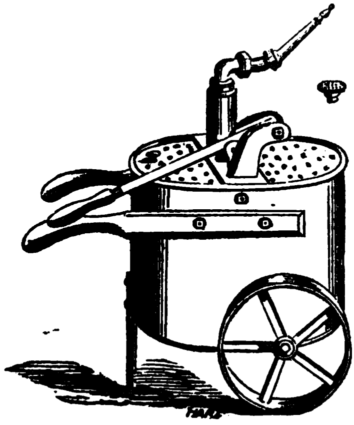
In Messrs. Gidney's rake the teeth are fine, and round, and shouldered into the frame; the neck gradually tapers to the socket, and is rounded off instead of presenting an angular point in which soil and weeds may lodge. Although strong, this rake is light, and made in the best possible manner, as are all the implements made by this respectable firm that have come under our notice.

Their garden engine, to hold thirty gallons, is a light and powerful article, made of galvanized iron, and will throw a continuous stream to a distance of fifty-five feet.

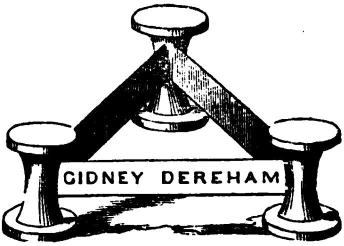
Messrs. Gidney's barrows, of wrought iron, are very light, and stronger as well as more durable than wooden ones.

Another article brought out by this firm we have been much pleased with, namely, their new invented iron garden scraper, of neat appearance, simple in construction, not easily upset or broken, and very portable.

One of these scrapers, placed near beds or borders that are being worked, will prove very serviceable in keeping the walks clean from the earth that will always adhere to the workman's shoes. These scrapers should be in general use in every garden.



Garden Engine.



New Garden Scraper.

A FEW OF THE BEST DAHLIAS ARRANGED IN CLASSES.

THE accompanying list comprises the leading flowers, and such only as may be fully depended on as constant and good.

White.—Queen of the Whites, Kant, Fanny Dodds, White Standard, Royal White, and Queen of the East,

Yellow.—Chance, George Glenny, King of Yellows, Chameleon, Louisa Glenny, and Bessy.

Pink.—Satirist, Rosea elegans, Mrs. Edwards, Princess, Ruby Queen, Deutche Wierde.

Lilac.—Fearless, Admiral, Ne Plus Ultra, King of Lilac, and Annie.

Orange or Buff.—Orange Perfection, Lady Franklin, Sir J. Franklin, Duke of Wellington, Robert Bruce, and Cherub.

Scarlet or Red.—Sir Robert Peel, Royal Scarlet, Scarlet King, Edward, Sir Charles Napier, and Lord Cardigan.

Crimson.—Duc de Malakoff, Triumph de Pecq, Incomparable (Ablet), and Colonel Windham.

PURPLE.—Frederick Jerome, Pre-eminent, Touchstone, and Mr. Seldon.

PURPLE CRIMSON.—Sir F. Bathurst, Sir Richard Whittington, Hon. Sidney Herbert, Morgan's King, Lord Bath, and Captain Ingram.

DARK. — Grand Sultan, Richard Cobden, Midnight, Essex Triumph, Nigger, Eclipse, and Negro.

DARK SHADED.—Pandora, and General Faucher.

LIGHT SHADED.—Rachael Rawlings, Duchess of Wellington, Empress, and Annie Salter.

SULPHUR AND YELLOW, SHADED OR TIPPED. — Beauty of the Grove, Doctor Gully, Mrs. Turner, Lady Folkstone, Mrs. Legge, and Constancy.

WHITE, EDGED OR TIPPED.—Barmaid, Princess Radziville, Lady Popham, Amazon, Miss Caroline, and Duchess of Beaufort.

FANCY, EDGED OR TIPPED. — Miss Frampton, Lady Paxton, Forget-Me-Not, Pigeon, Kaiserene von Ostériche, Duchess of Kent, Baron Alderson, Attraction, Florence Nightingale, Butterfly, Madame Armêt de Lisle, Lady Grenville, and Imperatrice Eugenie.

FANCY, STRIPED.—Uncle Tom, Cleopatra, Tam O'Shanter, Enchantress, Vasco de Gama, Marvel, Lady Scot Douglas, Polyphemus, Leader, Wonderful, Gloire de Kaen, Carnation, Souter Johnny, Sibyl, Margaret, and Amphion.

ON THE CULTURE AND MANAGEMENT OF THE ACHIMENES.

BY C. B., ST. JOHN'S WOOD.

THE many species and varieties of this pretty genus are all especially adapted for decoration, and although naturally summer flowers, yet by a succession we may have them in flower for a lengthened period; where a proper degree of light and heat are at command, some sorts, as *picta* and others of like habit, may even be made to bloom during this dull season of the year.

Achimenes are readily multiplied by potting off the small scaly tubers of the last year's growth that are generally produced in abundance. The period at which the tubers should be put in will be regulated by that at which the plants are to bloom. Commencing in February with a succession, plants may be had in flower from the beginning of June to the close of autumn.

The soil in which they are to be planted should be light, but at the same time, rich; the tubers may be planted rather closely together, and should be covered about an inch deep with soil. To start them, especially early, a little bottom heat may be given, and until the young plants appear, water but sparingly, as this tribe is very impatient of water at the root. As soon as they reach a couple of inches in height, pot them off into forty-eight-sized pots, three or four together, if they are required to bloom in this sized pot; if larger pots are made use of, as many as a dozen plants may be grown in each. When potted they will require a little heat to re-establish them, placing them in a close pit for a few days; after this, air should be allowed freely on all suitable occasions. To prevent their becoming drawn up, place them near the glass, and maintain a gentle moist heat, with shade in bright sunshine. Here they will make good progress, and in due time will be ready for a second and final shift. The pots must be well drained, and in transferring the plants the ball should be carefully preserved entire. For large specimens pans are to be preferred instead of pots, as it is not depth so much as surface that the roots require, being always found near the top of the mould. When repotted take them back to the warm pit, and here in a moist atmosphere they will require a little attention to make compact plants, and secure a good display of bloom. A few, consisting of the taller growing kinds may be rendered more compact, and will also flower better if stopped in once or twice. When in bloom the plants should be gradually hardened off before they are taken into a cooler place. As soon as out of flower, the tubers will require maturing by placing the plants in a warm house, and gradually reducing the supply of moisture, and when the foliage is decayed and soil quite dry, the pots will only need placing on a dry back shelf, secure from frost, until they are wanted for next season's bloom.

To have Achimenes in bloom during winter, the best plan is found to be putting in cuttings towards the latter end of summer.

SEASONABLE HINTS ON THE MANAGEMENT OF PLANTS IN ROOMS.

BY MR. HENRY DYER.

NOTWITHSTANDING all that has been said and written concerning the management of plants in rooms, there are many to whom it may not be amiss to offer a few words of advice on this subject, now that the winter season has fairly arrived.

To give directions for the proper management of plants in the dwelling room is a matter of some little difficulty, seeing that so many and such variety will have to be comprised. Each genus requires some variation, more or less, in its treatment from the rest.

Where plants are confined in close dark rooms few of them will thrive; but if light and airy, with windows facing the noon-day sun, most of them will do almost as well as in a greenhouse, and when in such a situation they are found to suffer, the effects may mostly be traced to another cause, either to improper soil or watering. The most essential point to be considered is the supply of light and air, as a deficiency of either one or the other will not fail to cause the plants to assume a sickly appearance. Deprived of light, the best of fruits become insipid and tasteless; and so with flowers, the handsomest become pale, and the foliage white. Light is the element by which plants fix their carbon, or fibre, hence we see the cause of the weakness of plants grown in such situations.

Injudicious watering ruins more plants in rooms than, perhaps, anything else at this period; it is a frequent practice to give water in such excess that the soil is quite sodden, and the roots are destroyed by it. At this time, when few plants are making growth, a small supply is necessary, and that merely to sustain vitality, for the plants themselves perspire a very limited amount; nevertheless, some moisture is requisite by plants to be replenished with stored up food against the renewal of active vegetation in spring. The best plan is to allow the soil in the pot to have the appearance of dryness before more water is given, and then allow sufficient to water the entire ball of earth. Pots should not be allowed to stand in water, this tends to destroy the roots of most plants. Feeders or saucers should therefore be emptied of the water that drains off. An occasional use of the sponge to clean dust and other impurities from the leaves, both on the upper and under surface, is highly conducive to health, and also to the beauty of their appearance; for what looks better at this dreary season than the refreshing green of the leaves of healthy plants, to say nothing of those in flower. They should also be regularly looked over, and the dead or decaying leaves removed. The surface soil in the pot may be stirred also, which is of great benefit, as well as makes them look nicer. I need say nothing here with respect to the soil most suitable, and, indeed, this is a subject embracing so much, and differing according to the variety of plant, that I should take up too much space; I will, therefore, content myself with referring the reader to the many excellent articles on this head, and treating of the particular culture of the plant, that have appeared in your pages.

As to protection, when the weather is likely to prove severe, the safest plan is to remove them from the window, where they would, most probably, receive injury from frost, to the middle of the room—and surround them with a few rugs or blankets. Fire heat is not wanted more than to keep out frost, and those who (as some are accustomed) place their plants in a warm or heated corner near the fire, and away from the light, where they remain for weeks at a time, ought not to expect healthy plants.

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REVIEW.

Cultural Directions for the Rose, with a select list, and Calendar of Operations. By John Cranston, 12mo, pp. 34. London: Houlston and Wright. Price 6*d.*

We have read Mr. Cranston's pamphlet with much satisfaction—it is evidently the production of a practical man, and to those who are interested in Rose culture—(and who are not?) will afford sound information. With respect to manure, planting, pruning and protecting Roses, Mr. Cranston remarks—

"Manure.—Pig-manure is undoubtedly the best for Roses. Let it lie in a heap for six months, by which time it will have become pretty well rotten; a small quantity of this applied to each plant, and forked in during the winter or early part of the spring will have a most beneficial effect. Stable manure is the next best and should be applied when rotten. Guano and super-phosphate of lime are also recommended by some, but these I have not found to answer in my soil, which is of a deep, stiff, loamy nature, naturally good for Roses. I find the application of these manures produces gross succulent wood, and not the firm hard wood which is necessary for the production of fine blooms. Wherever they are used they should be applied in a liquid state, and perhaps when judiciously employed upon light sandy soils, would prove very beneficial.

"Liquid manures are best used in the spring when the plants are in a growing state, and again to the Perpetuals after the first bloom is over. The drainings from dung heaps I have found the most efficacious, and good liquid manure may be made with either horse, cow, sheep, or pig dung.

"Planting.—All kinds worked upon the Brier or other stocks should be planted in the autumn—say early in November—and the tender varieties upon their own roots, which are usually kept in pots, may be planted at any time from March to May. No plant suffers more from late spring planting than the Rose, and I should recommend that all (with the exception of those to be turned out of pots in May) be planted by the end of February, and in no instance later than the middle of March, otherwise many failures and much weak growth will be the result. As soon as the plants are received from the nursery, let the roots be examined, and all injured portions and sucker roots removed; also shorten the long fibrous roots; by no means allow the roots to become dry, but have them put into the ground as soon as possible, and there let them remain until required for planting.

"Endeavour to choose a fine day as early in the month as possible; let the soil be sufficiently, but not too dry, this will be indicated by its being moist without sticking to the shoe or spade. Prepare the soil and holes for the plants as recommended above; then take out a few spadefuls from the centre of each to receive the plant, making the hole sufficiently large that the roots may be spread evenly and to their full extent, but on no account allow them to be planted too deep; level the whole of the mould in, shaking the plant at the same time that it may pass between every fibre, then tread the soil firmly round the roots, holding the plant in one hand to prevent it from sinking deeper into the soil. Put a stake to all standards above two feet high, to prevent their being disturbed by the wind.

"Pruning.—This operation will require to be performed during February, March, and April. Commence with the more hardy varieties, such as the French, Moss, Alba, Provence, etc. These for the most part have dormant looking buds, and being less active than others, take a longer time for their development. Next begin with the Hybrid China, Hybrid Bourbon, and Hybrid Perpetual, but as these are more exciteable than the above, only a few of each should be pruned in February, leaving the greater portion to be done in March.

"The Tea-scented, China, and tender Noisettes, should not be pruned before April. Before commencing to prune it is necessary to observe the habit of the plant, whether it be a vigorous, moderate, or dwarf growing variety; also to determine with those kinds suitable for exhibiting, whether they are required for that purpose or merely for effect; if for the former, large blooms will be required and less of them, and these can be obtained by close pruning; in the latter instance longer pruning must be adopted, when a greater quantity of blooms will be obtained, but they will be inferior in quality and less in size.

"Carefully thin out the head of the plants by taking away the small crowded branches, likewise all gross unripe shoots, leaving such only as are composed of firm and well ripened wood, and these at regular and equal distances. Prune down according to the strength of the shoot and habit of the variety; in some cases to two or three inches, in others where the habit is vigorous one foot, or even eighteen inches will not be too long for a shoot to be left, but as this depends upon the habit of the variety and shoot to be pruned, no absolute general rule can be given. In shortening the shoots cut close to an eye, observing, when practicable, to leave well swollen plump buds, which will always produce the finest blossoms; likewise secure those having an outward tendency, and pointing in a direction proper for the handsome formation of the plant.

"The French, Alba, Provence, and nearly all the Moss Roses, require rather close pruning, and if large blooms are required for exhibition, this particular must be strictly attended to.

"The Hybrid Chinas and Hybrid Bourbons, are, with few exceptions, very vigorous growers, and require more care in pruning than most other sorts. An acquaintance with the varieties is necessary to enable the operator to prune successfully—for instance, we have *Fulgens* and *Brennus*, vigorous growing varieties which frequently produce shoots five or six feet long in a season, either of which if pruned as recommended for the French or some other of like habit, would not produce a flower, whereas, with judicious pruning, every shoot would be made to give out large trusses of blooms. The varieties in these two classes must therefore be carefully studied, as there are some amongst them which require close pruning; and these may be known by their moderate style of growth when compared with the large majority of the same families.

"Young plants just received from the nursery will require to be pruned down to two or three eyes, a little more or less, according to the habit of the variety; unless this is attended to, large and handsome heads are rarely obtained. The Austrian Briers require a system of pruning peculiar to themselves; if pruned in the spring as recommended above they will produce but few, if any blooms; therefore all plants that are required to bloom must be left *unpruned*, with the exception merely of a little thinning out, and having just the ends of the shoots taken off; this treatment may be continued from year to year with *Harrisonii* and a few other varieties; but the *Persian Yellow*, to be kept in vigorous health, must be pruned down close every year, otherwise it will soon exhaust itself; when this plan is acted upon, of course no blooms will be produced that season; it is well therefore to grow duplicates of this kind, pruning the one half one year, and the other the next. Like other Roses that are required to form fine and handsome heads, they must be shortened down to four or five buds the first season of planting.

"Weeping Roses (which are vigorous growing varieties, worked five to seven feet high) merely require the gross unripe shoots and those which are over-crowded to be taken out, and the others left unpruned. These for the first year or two should be trained round a small iron hoop placed underneath the head of the plant; in a short time they will form most beautiful pendulous trees, requiring little or no pruning.

"PROTECTING.—The whole of the Tea-scented, China, and the greater portion of the Noisettes, will require to be protected more or less, otherwise they will not withstand the long and continuous frosts and north-easterly winds, which have of late years been so prevalent throughout the spring months. The following is the plan I have adopted during the last few years for protecting the tender budded varieties grown as standards or pillars; and nothing can be more easily applied, or more completely resist the effects of frost. In the first place have a quantity of hay bands twisted and rolled up into convenient lengths; let a stake be driven into the ground close to the plant, and sufficiently

> long to pass through the head of the plant to the extent of the shoots; draw the branches up together, and tie the whole moderately close to the stake, so that the hay bands may be easily turned round the whole of the head, commencing at the lower part or collar of the bud. About this let the bands be put on quite close, but towards the middle, and on the upper part of the plant leave a little space between the coils of the ropes to admit air during damp weather. In the northern and colder parts of England, it is a good, and perhaps the best practice, to take up, about November, all the Tea-scented and China varieties and place them against a south wall, and in very severe weather to put a little matting before them. In the spring, say early in March, replant them where they grew before, putting in a little fresh loam and rotten dung. The best protection for tender varieties upon their own roots, is afforded by half decayed leaves placed two or three inches thick upon the surface of the bed: moss will also do, but will require to be pegged down or stones placed upon it to prevent the wind blowing it away.
>
> "A lighter protection for the heads than that recommended for the standards will suffice for these; if the roots and crown of the plants are well preserved, a sufficient quantity of shoots will be produced from them to replace any that are killed down. A few fern branches placed about the head is usually sufficient."

The "Cultural Directions" further embrace the following topics:—Insects infesting the Rose, mildew, Stocks, exhibiting and cutting blooms for show, and the properties of a good show Rose; also lists of Roses classified, comprising Roses to be grown in large manufacturing towns, or in localities where much smoke prevails, with the aid of large hand or bell-glasses. Choice varieties in addition to the whole of the foregoing, suitable for cold climates and soils, and also in moderately smoky atmospheres. Varieties, including the preceding, suitable for ordinary soils, where no smoke exists, and also for the most favourable parts of the north of England. Varieties for the most favourable soils and climates. Finest show Roses—and Garden varieties selected for grouping, together with lists of varieties for forcing, pillars, etc.

NOTES ON NEW AND SELECT PLANTS.

PANDANUS CANDELABRUM. Nat. Ord. *Pandaneæ.*—A Screw-Pine from the western coast of Africa, where it occurs very plentifully, and from there introduced to the West Indies, and England, but rare in collections. Specimens are, however, growing at Kew and the Crystal Palace, where they flourish well. In its native locality it appears to attain the dimensions of a large tree, crowded with a tuft of leaves, spirally arranged in a handsome manner, that causes them to give quite a picturesque effect to the landscape. The leaves are about three feet long, and about two inches across, the margins rather widely beset with brown spinous teeth; the flowers are borne in dense thyrses springing from the axils of the leaves, and said to yield a powerful odour. The fruit is a drupe, yellow below and dark green above, with a tinge of red where the free portion unites with that which is in contact with the adjacent drupes, the apex supporting five or six sessile stigmas.—(*Bot. Mag.*, 5014.)

116. SABBATIA CAMPESTRIS. Nat. Ord. *Gentianeæ.*—An annual very little known as yet, from the Arkansas territory, where it was discovered by Mr. James Drummond, inhabiting the prairies. It has also been detected in Texas, and New Orleans. We owe its introduction to Mr. W. Thompson, a young and very deserving seedsman who has recently commenced business at Ipswich; he received seeds from a correspondent in Germany in 1855. It grows from four to six inches and upwards in height; the corolla large and handsome, of five segments, of a deep rose colour, with a pale yellow centre, measuring about two inches across; the leaves are opposite, obcordate, and sessile, about three quarters of an inch long, of a light green colour. Seeds require the temperature of a hot-bed. (*Bot. Mag.*, 5015.)

117. DILLENIA SPECIOSA. Nat. Ord. *Dilleniaceæ.* — Drs. Hooker and Thomson describe this beautiful tree as inhabiting the dense forests of the whole of tropical India, and as frequently grown in a state of cultivation on account of its beautiful large white blossoms; the petals, five in number, are upwards of three inches long and concave in the upper portion, composing a flower of six or eight inches across; the stamens are very numerous, forming a large yellow tuft in the centre, almost concealing the pistillum. The leaves are very much confined to the extremities of the branches (which are numerous and spreading), six to eight inches long, deeply serrated at the margine, and closely ribbed. (*Bot. Mag.*, 5016.)

118. SALVIA CANDELABRUM. Nat. Ord. *Labiatæ.*—A hardy suffruticose Salvia from Spain, where it grows at an elevation of 2500 to 3000 feet above the sea level. The flowers are of medium size, white, or pale sulphur, with the lower lip of deep rich violet, variegated and streaked with white in the throat, borne in a cyme somewhat regularly disposed, which has given rise to the specific name. The whole plant is rather hoary, very leafy, and exhales a strong aromatic scent. (*Bot. Mag.*, 5017.)

519. CODONOPSIS ROTUNDIFOLIA, var. GRANDIFLORA. Nat. Ord. *Campanulaceæ.*—The present variety was raised at Kew from Himalayan seeds that flowered in July of this year, and has proved a mere variety of *C. rotundifolia,* but rather more handsome than its relation in its larger and more variegated corolla, which is campanulate, pale green and delicately marked on the inside, measuring about an inch across the mouth. The stem is tomentose, and the leaves of a lively green above, and pea green beneath. (*Bot. Mag.*, 5018.)

FLORICULTURAL OPERATIONS FOR DECEMBER.

IN THE FLOWER GARDEN.

GENERAL OPERATIONS.—*Alterations,* and such operations as require carting or wheeling, should be performed, if possible, in frosty weather, that walks and grass may be preserved from injury as much as possible. *Composts,* turn over heaps in order to expose them to frost; they should be covered over from wet if practicable, for this purpose open sheds are best. Every opportunity should be availed to obtain the various composts likely to be wanted; they consist chiefly of the following:—Loam, the top spit from pastures; yellow loam, from pits; leaf-mould, from woods; sand of various kinds; peat from commons, and bog peat manures, as horse and cow dung: marl, lime, chalk, ashes, charcoal, guano, bone dust, etc. With such materials any description of compost necessary for the successful cultivation of plants may be formed. *Dig and Fork over*, as directed in last month. *Edgings*, trim. *Florist's Flowers* in beds, protect if severe weather occur. *Grass* may be rolled when the weather is open. *Gravel Walks*, roll and sweep. *Hedges*, clip, and plant new ones. *Leaves*, gather for compost, or trench them in the ground of borders or shrubbery. *Perennials* divide and plant. *Plants in Pots*, protect such as likely to be injured by severe weather. *Shrubs* of all kinds plant; mulch such as are rather tender, and place stakes to prevent injury by winds. *Tree and Shrub Seeds*, many may be collected now, and stored up. *Turf*, if the weather be open, may be laid down.

Cultural Department.—*Alpines and Rock Plants*, shelter tender kinds with a covering of fern, etc., keep clean. *Chrysanthemums*, when the plants have ceased blooming cut off the stalks, and remove them to a cool frame. If it is likely any of the flowers possess seed, such plants should not be headed down, but place them in the greenhouse, which see. *Dahlias*, look over the stock of roots, keep them dry, and let them have air whenever the weather is not frosty, in order to prevent mouldiness, cut off any decayed parts. *Hollyhocks*, see last month's directions. *Hyacinths*, top-dress the beds with a coating of strong manure, three inches thick. The bulbs need not be renewed more than once in three or four years. *Pinks*, look over the beds, and destroy grubs, which, together with worms, will do much injury unless prevented; place small sticks to prevent their being twisted by the wind. *Polyanthuses*, protect from very severe frost or wet, by placing tiles or other coverings over them. *Ranunculuses*, protect in like case. Planting may be performed if mild. *Roses*, protect the stems of tender kinds, and climbers with a covering of fern, or whin, so as to admit some air; suckers may be taken off, and replanted. *Tulips*, protect the beds from frost and snow. The best framework to support the mats is formed of iron rods, which will be found the neatest and most durable, as well as the most economical in the end.

IN THE GREENHOUSE, COLD PIT, AND FRAME.

General Operations.—*Air* must be admitted whenever the temperature outside permits. *Cleanliness* will require constant attention to the plants, pots, and house; this is very necessary at the present time to keep the stock in health. *Fumigate*, to keep down insects; its effects will be well seconded by scrubbing, and washing large foliage. *Surface Soil*, keep stirring. *Temperature* of the greenhouse may be kept at 45° by day and 40° by night; so long as a freezing temperature is excluded, either by the help of coverings or fires, the plants will receive no harm. When the temperature is low, the darkness occasioned by shading will not injure the plants. *Water* sparingly, and keep the stage, paths, and inside of pits dry.

Cultural Department in the Cold Pit and Frame.—*Alpines*, allow them free circulation of air in fine days, by removing the sashes or shutters. The plants will require little or no water during this month; dampness must be specially guarded against. *Auriculas*, let them have plenty of air, it matters little how much wind they are exposed to—or frost, provided they are dry, which at this season is very necessary. *Bulbs*, let them have a gentle heat for early blooming. *Carnations and Picotees*, take off the lights in fine weather, preserving them only from frost, snow, and heavy rain; water carefully, if very dry, but avoid wetting the leaves; keep free from slugs, and observe last month's directions as to spot on the leaves. *Chrysanthemums*, bring in those that being out of flower have been cut down and taken up. *Cinerarias*, see last month's directions. *Ixias, Sparaxises, etc.*, allow plenty of air on fine days. *Pansies*, keep off damp by means of free ventilation. *Verbenas*, also require abundance of air so long as frost is not admitted; pick off decayed leaves, and water very moderately; if mildew appear, dust the plants with sulphur directly.

Cultural Department in the Greenhouse.—*Calceolarias*, will require attention by fumigation to prevent the ravages of green fly, and heat and moisture according as they are intended to bloom; the latter observation applies also to *Camellias*, which should have sufficient water to prevent their losing the buds. *Chrysanthemums*, such as have bloomed out of doors, may be removed here to perfect their seeds if wanted, which, when ripe, cut off and preserve for spring sowing. *Cinerarias*, remove all suckers, and pinch off the heads of specimen plants for exhibition if showing bloom; this in order to compel the laterals to push more freely; and bring all into the greenhouse intended for early bloom, where they should have plenty of room allowed them. *Climbing Plants*, these will require to be pruned, were it only to afford light in the house, now the days are short and mostly gloomy; the *Passifloras* may be cut back to one eye from the main stem. The winter blooming Climbers should be trained and dressed. *Epacrises* and *Ericas*, last month's directions still apply. *Oranges* coming into blossom should have a little increase of temperature. *Pelargoniums*, stop in those plants intended for June blooming, when they may be kept rather dry until they have begun to shoot. Train out the shoots that will admit of it, tieing them to sticks in order to allow air to get to the centre of the plant freely. *Primroses*, *Chinese*, bring in; let them have manure water when they show flower. *Shrubs for forcing*, introduce. *Succulents*, keep these generally dry during their period of rest. A few of the Cactuses now in bloom will require warmth and moisture, however.

IN THE STOVE.

◆

General Operations.—The main points to be attended to this month in the management of the stove, are, to admit *air*, preserve *cleanliness*, keep down *insects*, and *water* with circumspection.

Cultural Department.—*Achimenes*, pot for early flowering. *Begonias* may be repotted for the same purpose. *Clerodendrons* and *Franciscea*s repot towards the end of the month, give water in moderation. *Gardenias* may also be potted and started into growth; bottom heat is best. *Gesnerias*, *Gloxinias*, *etc.*, repot in fresh soil; let them have moderate heat, and a little water. *Hoya bella*, for baskets, may be planted and trained downwards as it makes progress. *Ixoras*, a rather cool temperature suits best, with water rather sparingly supplied. *Luculias*, those in flower will have the bloom preserved for a lengthened period if removed from the stove to the lower temperature of a greenhouse. *Lycopodiums*, may be divided to increase stock. *Orchids*, water only those making growth. *Shrubs* for forcing may be brought in early in the month.

QUESTIONS, ANSWERS, AND REMARKS.

Weigelia rosea and Deutzia gracilis.—An Amateur wishes for information as to the proper plan for pruning young plants of these handsome shrubs.—*Richmond.* [These shrubs will be better left to themselves until they are about five years old. After that cut out the old wood of each, in moderation, so as to keep the inside sufficiently open. Any rambling young branch may however be dispensed with.—Ed.]

American Aloe.—*A Lady Subscriber* has an American Aloe growing in a large tub, that has been standing out of doors, how can she best preserve it through the winter, having no conservatory?—*Hexham.* [Our esteemed subscriber's letter was too late for a reply in November. The Aloe will keep very well, if preserved in a cool, dry place; the soil should be maintained in a rather dry state, and frost excluded. When the weather is mild, it may be set out of doors occasionally.—Ed.]

Aloysia citriodora.—I have a fine plant of this old-fashioned but delightful scented plant against the end of my house which has stood well with me for several years, and looks very luxuriant in the summer. I cut it down regularly on the approach of winter's frost, having just performed the operation at the present season (Nov. 12.) I spread a layer of six inches of ashes over the root and stump to preserve it, and over this a armful of fern, with a mat to keep it together and ward off the wet. I remove the covering in April, when it pushes vigorous shoots, which are screened at nights with a mat for a week or two. By the end of autumn the shoots are from four to five feet long, and as thick as a cane. Its leaves shed a delightful perfume for some distance around, and it looks very pretty when covered with its delicate green foliage even to the last.—*M. P., Sussex.*

Orchid House.—Having put a small stove, heated by hot water, and measuring only nine feet long by seven feet in width, I should wish to know whether I might expect success in the cultivation of a few Orchids, as *Cattleyas*, *Stanhopeas*, *Oncidiums* and *Lycastes*, of the small growing sorts.—*A Young Gardener.* [There is no reason why you should not grow Orchids of the genera you enumerate, provided they have warmth and moisture. The *Oncidiums* and *Cattleyas* may be attached to charred blocks of wood in pots, while *Lycastes*, *etc.*, will succeed well in suspended baskets. The temperature at this season should be from 55° to 60° at night.—Ed.]

Pansy Culture.—To grow these beautiful little flowers properly, let the ground be well drained, and well dressed with decomposed cow-dung; and if too adhesive, fork in a little sand. Plant nine inches apart, and close the earth well about the roots. Always take side shoots springing from the bottom for propagating, if you can get them. They always root freely, if not rooted when taken off. Avoid taking hollow pipy shoots for cuttings. To ensure striking, the bottom of the shoots, when cut off to the base of the leaf, should be solid. Shade all cuttings, and cover close with a hand or bell glass, whether they are in frames, boxes, pots, or the open ground. Continue planting beds of struck cuttings, to succeed one another in flower. It is only from young plants we can get fine blooms. Shade all blooms for exhibition. An hour's hot sun would destroy the finest flowers in the bed. Save seed from half-a-dozen of the finest varieties you possess, planted by themselves away from all others. Sow as soon as you save it, or a portion, from May to August, as it may happen. Plant them out as soon as they have four rough leaves; but press the earth to the roots every time the frost and thaw disturbs them. In winter, if you have convenience, hoop and mat, or otherwise cover the bed—if with nothing else, with litter. In spring, the beds of seedlings or established plants may have half an inch thickness of dung from an old hot-bed, or well decomposed cow-dung. As fast as any seedlings bloom, inferior to those you have, pull them up and throw them away. Never wait for any particular season for taking off side-shoots; take them whenever you can get them without distressing the plants. Water seldom, but effectually; soak the bed to a considerable depth. Towards October pot all cuttings that you do not want to plant out, and keep them under glass; begin with thumb-pots, and shift to larger as these fill with roots. If you bloom any in pots, use seven or eight-inch pots, with a compost of two-thirds loam from rotted turves, and one-third cow-dung, or dung from an old melon-bed. Whenever the surface of the bed has run together solid, stir the top one or two inches, always closing the earth to the roots. Never allow a weed to grow in the bed. A little neglect in this matter will cause a world of trouble. Never remove a good seedling till you have propagated it a little. Plant your principal spring blooming bed in October; the succession ones any time when weather suits.—*G. Glenny.*

Kalosanthes coccinea.—Let me urge a word in favour of this splendid plant. It is true it is an old one, but none the worse for that. Few plants are so brilliant in tint, being a vivid scarlet crimson, and fine flowering plant. All it requires is to be well grown; with a little care I have produced magnificent specimens. Insert cuttings in February, trimming off the bottom leaves, and using small pots of peat and loam with plenty of sand. Bottom heat is not essential, but of great advantage. After they are put in, shade them till they are rooted, and water them when the soil requires it, as they should be kept just damp, and no more. They will soon strike, when they should be potted off with like soil as before for cuttings. After they have begun to grow a bit, say three inches, cut off the tops to make bushy plants, repot them into a larger size, and keep them in the frame till nearly midsummer, when it will be time to harden them off for standing out of doors. They will bloom finely the following year, and should be tied out nicely to show them to advantage. After flowering give little water till they break again; although the plants should never be allowed to become quite dry at the roots, or they will lose their lower leaves. Some persons recommend lime rubbish as an ingredient in the soil, but I think with no advantage, and sand is more suitable. Free drainage must not be forgotten, and with these little attentions the Kalosanthes will bloom magnificently. It is a native of the Cape of Good Hope, and one of the handsomest of the Crassula family; the only wonder with me is—that everybody does not grow it.—*T. B.*

Iridaceæ.—Many plants of this natural order grow in moist or marshyplaces, and it is a too common error to suppose that light, sandy soils are most suitable, for some delight in an abundance of water. The *Iris Xiphium, J. Susiana, Narcissus, and Gladiolus Natalensis*, would, I believe, be found to bloom more freely and far better in a soil more loamy, well drained, and freely supplied with water than is customary. *Iris Susiana* (the Chalcedonian Iris) does not generally bloom well as it is mostly grown, and would appear to have been treated better by the old gardeners rather than by the modern, for it has been grown in England about three hundred years, and Gerarde says it was with him a plant of exceeding beauty, and would justify the opinion of its being the "lily of the field," alluded to by our Saviour, that exceeded "Solomon in all his glory."—*Juvenis.*

Botanical Mission to Dutch East India.—It gives us much pleasure to announce that the Dutch government have recently dispatched the well-known botanist Dr. De Vriese, assisted by Dr. De Vry as chemist, on a botanical mission to their possessions in the East Indies, to explore the vegetable riches of Java and the Malay Archipelago. These gentlemen embarked at Marseilles in the Peninsula and Oriental Company's mail steamer that left Southampton on the 20th October. Dr. De Vriese is charged with researches after plants useful in any way in the arts, and their products, as gums, resins, dye-stuffs, fabrics, caoutchoucs, varieties of gutta-perchas, etc., as well as to search for new plants in these regions so abundantly furnished with many of the most beautiful and interesting natural productions. *En route* these gentlemen will spend a fortnight in Ceylon, and we are sure will carry with them the best wishes of all who are interested in the knowledge of plants.

German Asters for Exhibition.—Those who have seen the fine display of German Asters at the Crystal Palace, and other of our floral exhibitions, may be glad to know the method pursued in obtaining such fine blooms, and preparing them for the show. Having devoted some attention to this beautiful flower I will describe my treatment, in the hope that it may lead to farther competition. I do not consider it a good plan to sow the seed in the beds, as the young plants are so liable to injury from snails and other pests, while in pots or pans they are so liable to be drawn up and weakly. I sow my seed in a cold pit, under glass, about the first week in May, in small drills eight inches apart, and very thinly. They soon make their appearance above the soil, and then must have air admitted; as soon as they are high enough to be handled I take off the lights altogether, and in a short time prick them out on a gentle uncovered hot-bed, six inches apart. I remove them to the bed before the leading stem has had time to advance; care should be taken to remove them with as much mould as possible around the roots; some rich manure is to be digged into the bed, and the plants put in from ten inches to a foot apart. They will require watering until they are well rooted, also if the weather prove dry. I keep the soil stirred between them, and tie up the plants as they make progress. A top-dressing of manure greatly assists in forming fine blooms; and all superfluous shoots as well as the centre one or head of the leader are pinched out, to throw the strength of the plant into the three or four blooms alone that I leave on each plant. I tie them up to neat sticks, and as the bloom advances make ready some shades of square boards, a foot across, with a stick inserted as a support at one corner, to keep off hot sun as well as rain.—*An Exhibitor.*

Pompone Chrysanthemums for Exhibition.—Put in cuttings of suckers, by the end of November, in sixty-sized pots, keep them in a cold frame all the winter; pot off, in the beginning of March, in forty-eights, and carefully take out the leader. Shift again in the latter end of May, again stopping carefully all the breaks, and peg down to the rim of the pot all the branches; shift again in June, into sixteen-sized pots, being the last stage for blooming; keep stopping to the middle of August, and pegging down; never mind the centre, it is sure to fill up, look after the outside; give plenty of liquid manure-water twice a day, or oftener if required: plunge them in a shady place in summer, about three parts up the pot, where they will not get the afternoon sun. You will have, by this treatment, plants of good foliage, one foot high, and three feet six inches over, without sticks.—*G. Glenny.*

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